



Medal at Boston Exhibition, 1883.

Gold Medal, International Health Exhibition, 1884.

Gold Medal, International Inventions Exhibition, 1885.

FIRST AWARD.  
SYDNEY, 1879.

FOR SIMULTANEOUS BLASTING.

Note the TRADE MARK:

REGISTERED TRADE MARK



Two Separate Threads through Centre of Fuse

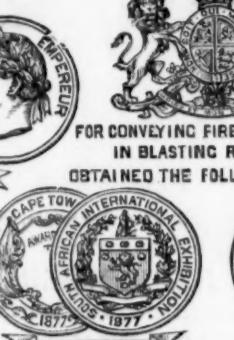
## BICKFORD'S PATENT FUSES

FOR CONVEYING FIRE TO THE CHARGE  
IN BLASTING ROCKS &c.&c

OBTAINED THE FOLLOWING MEDALS



PARIS, 1867.



VIENNA, 1873.



PARIS, 1855.



SANTIAGO, 1876.

FIRST AWARD.  
MELBOURNE, 1881.

FOR SIMULTANEOUS BLASTING.

SILVER MEDAL OF THE MINING INSTITUTE OF CORNWALL, TRURO, 1880,  
for an Improved Method of Simultaneous Blasting.

## BICKFORD, SMITH AND CO.,

THE INVENTORS, AND ORIGINAL PATENTEES AND MANUFACTURERS OF

## SAFETY AND INSTANTANEOUS FUSES AND IGNITERS

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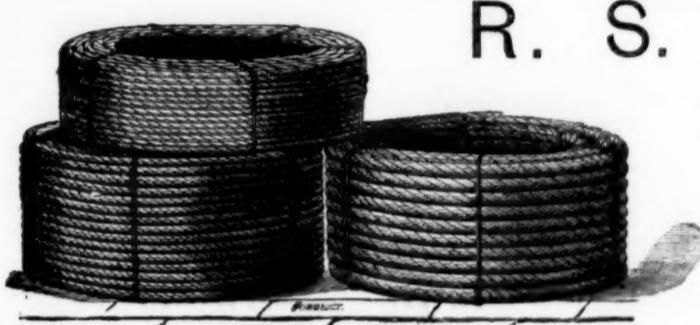
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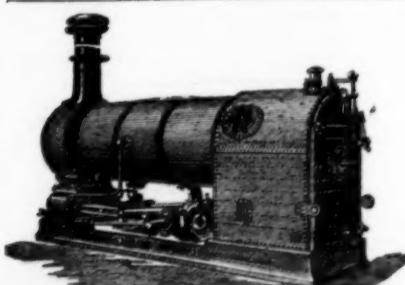
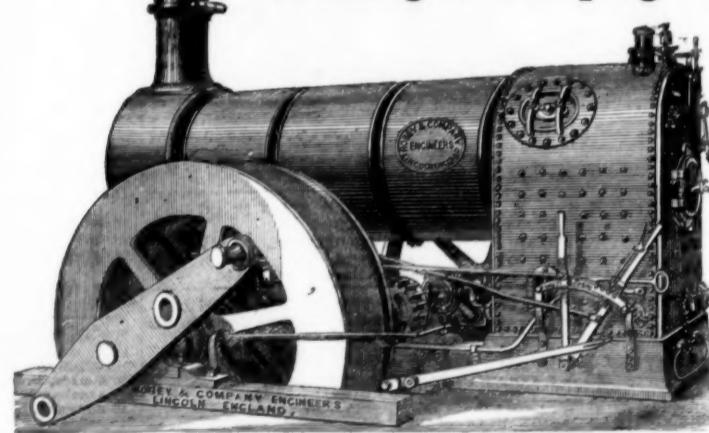
Glasgow: 68, ANDERSTON QUAY.

MANUFACTORY: GATESHEAD-ON-TYNE.



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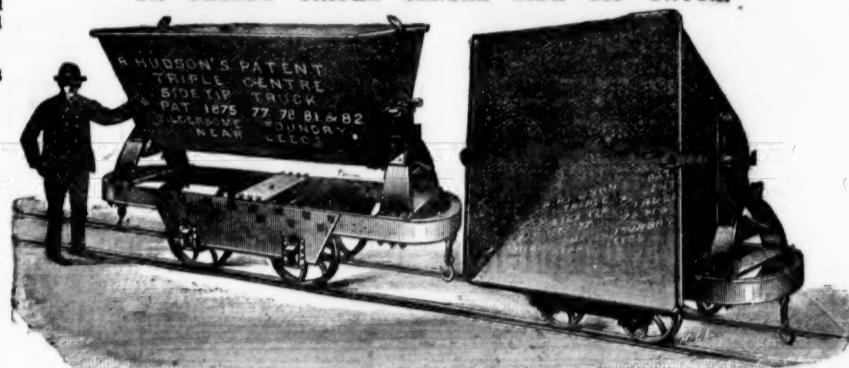
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PORTABLE RAILWAY, STEEL BUCKETS, &c., &c. GILDERSOME FOUNDRY, NEAR LEEDS.

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N.B.—The American, Indian, Australian, and Spanish Patents on Sale.

23.—PATENT TRIPLE CENTRE SIDE TIP TRUCK.



One man can tip any weight with ease.

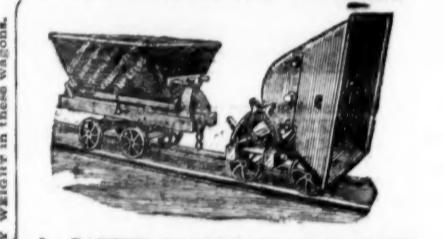
17.—SELF-CONTAINED TURNTABLE,  
Requiring no Foundations.



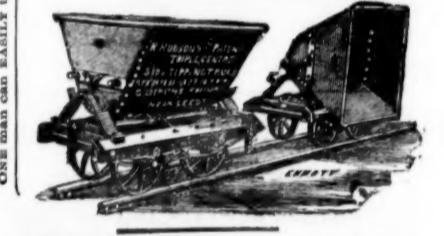
1.—PATENT STEEL END TIP  
WAGONS.



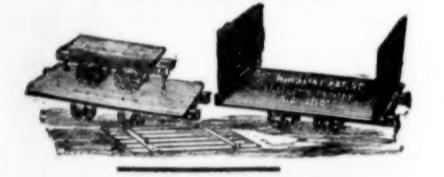
2.—PATENT UNIVERSAL TRIPLE-CENTRE  
STEEL TIPPING TRUCK,  
Will tip either side or either end of rails.



3.—PATENT TRIPLE-CENTRE STEEL  
SIDE TIP WAGONS.



4.—PATENT STEEL PLATFORM OR  
SUGAR CANE WAGON.



5.—PATENT STEEL CASK.  
As supplied to H.M. War Office for the late war in Egypt.  
DOUBLE THE STRENGTH of ordinary Casks without any  
INCREASE in weight.  
Made from 10 gals. capacity UPWARDS to any desired size.



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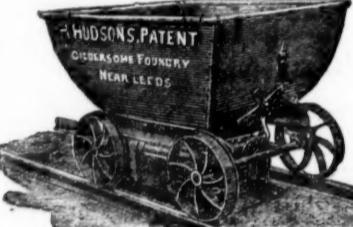
7.—PATENT STEEL MINING WAGONS.



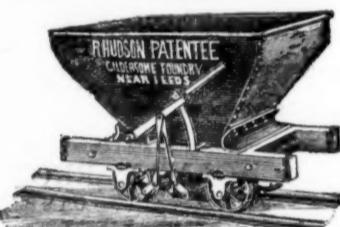
8.—PATENT DOUBLE-CENTRE STEEL  
SIDE TIP WAGONS.  
Will tip either side of Wagons.



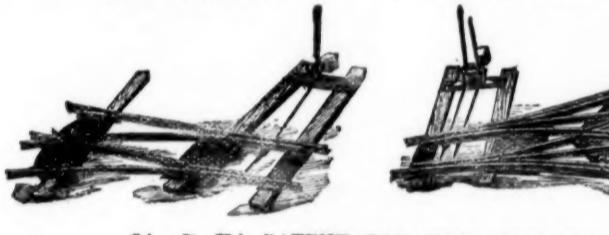
12.—PATENT STEEL HOPPER  
WAGON, with BOTTOM DOORS,



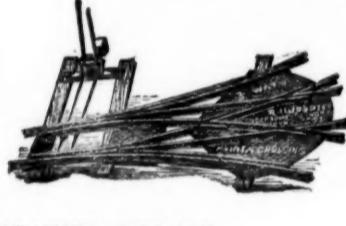
13.—PATENT STEEL HOPPER  
WAGON.



24.—R. H.'s PATENT BALANCED END TIP



11.—RIGHT AND LEFT-HAND  
STEEL POINT AND CROSSING.

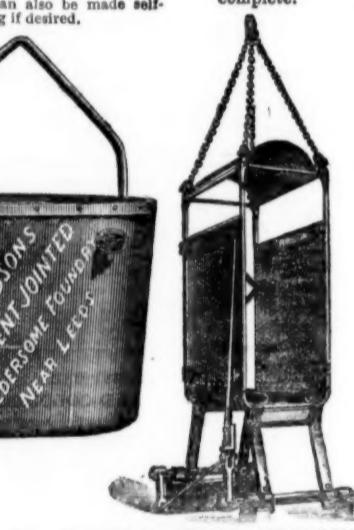


14.—SELF-RIGHTING  
STEEL TIP BUCKET.

The "Catch" can also be made self-acting if desired.



15.—R. HUDSON'S  
Patent Steel Cage  
and Fallers, &c.,  
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18.—"AERIAL" STEEL WINDING  
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Made to any Size.  
Lightest and Strongest in the Market.

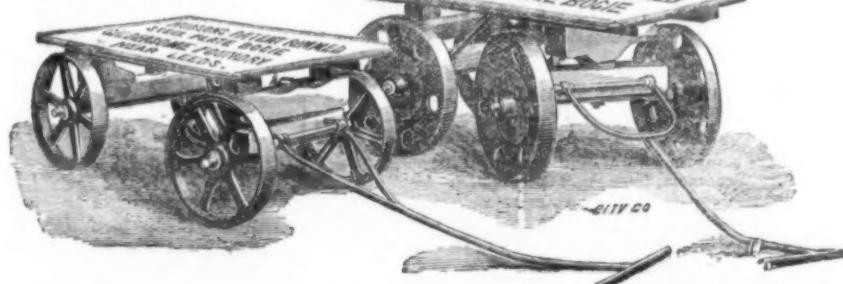


A great success.

25.—PIG-IRON BARROW,  
R. H.'s Patent



No. 22.



No. 21

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NEAR LEEDS

HUDSON'S PATENT WHEELED  
STEEL PLATE BOGIE

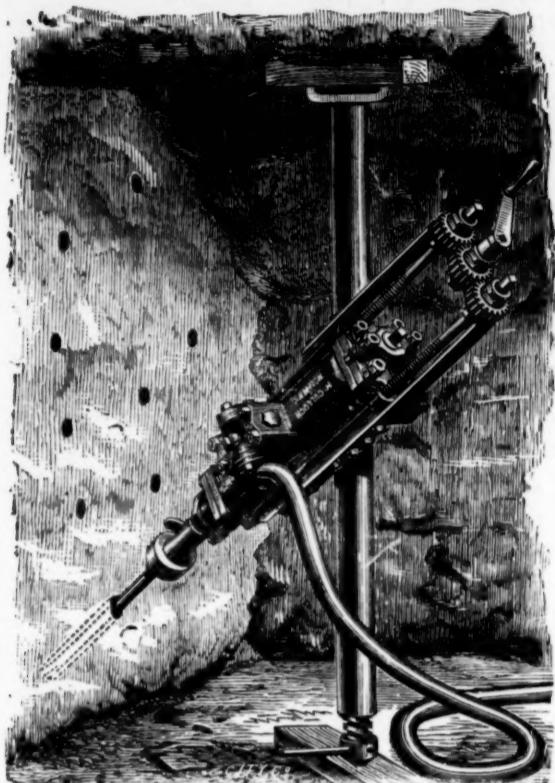
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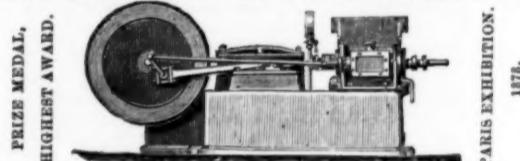
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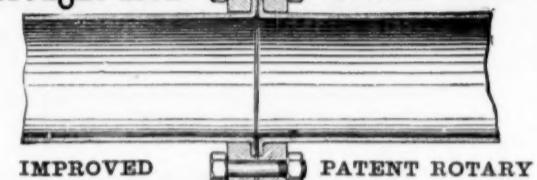
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SPECIAL DESIGNS FOR EXPORT AND DIFFICULT TRANSIT.

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This new and powerful Blasting Agent possesses the following advantages over Dynamite, Tonite, &c.:—It is absolutely safe to Handle, Store, and Carry. Careful practical trials have shown Oxonite to be 25 per cent. MORE POWERFUL than Dynamite, and that Oxonite can be used wherever Dynamite and Gun Cotton are employed. It can be also used in Guns and Torpedoes. It is not subject to the Congelation and Exudation which in the case of Dynamite have given rise to thousands of Fatal Accidents. It is perfectly safe to Store or Transport, being manufactured in two separate portions, NEITHER OF WHICH IS EXPLOSIVE IN ITSELF, and which can be mixed together by any unskilled labourer without danger or error, and may be shipped at Ordinary Rates, thus effecting a great Saving in freight.

### OXONITE SAFETY DETONATORS (PATENTED).

These Detonators can be hammered on an anvil without danger, and yet will explode violently when ignited by the ordinary fuse. They may be also used in place of Dynamite, Cotton Powder, Tonite, Gunpowder, or any other Explosive.

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THE LECTURES FOR THE WINTER HALF WILL COMMENCE ON THE 8TH OF OCTOBER, 1885.

Programmes to be had (gratis) of

THE DIRECTOR,

BERGRATH DR. v. GRODDECK.

### Original Correspondence.

#### DREDGING GOLD COAST RIVERS.

SIR.—Referring to your last issue, Mr. D. W. Lowman's letter re dredging the Gold Coast rivers, I beg to say I have given great attention to this matter, and have constructed several light dredgers which can be fixed to any light boat, punt, or even a float made of timbers, which are working successfully.

If the subject is of sufficient interest I should be glad to send you drawings of these and of my automatic dredger, which works entirely by the operation of the tide, or force of the stream, and is kept going night and day without any cost for power where the rivers are suitable. In the event of your taking the matter up some of the drawings would require to be cut in line blocks; but I think the matter of a cheap apparatus for dredging rivers and streams containing tin and gold has not been attempted on the lines upon which I work.

Standard Ironworks, Washford-road, Sheffield, August 31.

CHARLES E. HALL.

#### GOLD AMALGAMATION, AND GOLD PRODUCTION.

SIR.—In my last letter I referred to gold as found under two conditions, clean or "free," and as covered with an oxide or sulphide of iron or copper, or dirt that envelopes each particle, and so prevents its amalgamation with quicksilver. In the first state there is no obstacle to its union with quicksilver; in fact, the difficulty would be to prevent that union if they were brought in contact. If the subject is of sufficient interest I should be glad to send you drawings of these and of my automatic dredger, which works entirely by the operation of the tide, or force of the stream, and is kept going night and day without any cost for power where the rivers are suitable. In the event of your taking the matter up some of the drawings would require to be cut in line blocks; but I think the matter of a cheap apparatus for dredging rivers and streams containing tin and gold has not been attempted on the lines upon which I work.

But gold is found in combination with other metals and minerals, which prevent its union with quicksilver. Under these circumstances three questions arise. Can it be got out; how can it be got out, and can it be got out profitably? The last question determines the other two, for if it cannot, the French proverb will apply, that "the game

is not worth the candle." When thus mixed with other minerals or metals the gold is always exceedingly fine—in fact, like flour, and whatever is in connection or combination with it, must be reduced to the same degree of fineness before it is possible to secure the gold by any process. It then is fit for a concentrator, where, by the difference of its specific gravity it can be separated from the crushed ore, and then treated either chemically or in the furnace. To render either of these processes successful, the separation must be as complete as possible, so as not to have to treat any in bulk but what will pay for such treatment. There are, however, very few mines that will yield a profit when the gold is found only in this state.

I always regret when I see amateurs and non-practical men devoting their time and money to the subject of amalgamation, as if by inspiration or accident they could overcome difficulties that have never yet been solved—viz., by a machine that will save all the gold from every mine, no matter what it may be in combination, and whether it will pay to do so or not. No doubt there is advantage in fresh minds being brought to bear on any subject; but in this particular one, I doubt if any arrangements of a practical kind will ever result from the efforts of those who have not had experience in the work. I remember an instance of this at the Conrad Hill Mine, N. C., at the time I took my amalgamator to those mines. A newly patented amalgamator had been fixed there, and discarded after the first trial. It was a complicated machine that required an 8-in. belt to drive it. No less than 600 lbs of quicksilver was required to charge it. The pulp was to pass through quicksilver in consequence of the action of arms on an upright shaft. The whole was heated by steam, the result of such heating being that the quicksilver was distributed in most minute particles all through the pulp, from which it was impossible to recover it. It moreover required the services of a skilled mechanic for a whole day to clean it out. I merely name this as an instance of misdirected efforts by one who was totally ignorant of the first principles of amalgamation, as well as of mechanical movements. The least knowledge of quicksilver would have prevented the use of steam with it, except the thermometer had been below zero.

HENRY MOON,  
Inventor and Patentee of the Quicksilver-Wave  
Amalgamator.

St. Paul's-road, N., August 26.

#### THE ST. AGNES DISTRICT.

SIR.—Availing myself of recent fine weather I have had a trip to Cornwall, and being interested in, I may say, all the mines about St. Agnes, I stayed a few days there so that by personal investigation I might satisfy myself on a few points. Having done so, I pen this thinking it may interest a few who may not find time to go there, and who yet are interested in the tin mines of St. Agnes. Arriving at Chacewater Station and getting a wash and comfortable breakfast at the Lion, Blackwater, I had a delightful walk of about one hour to St. Agnes, and my first object of interest was Wheal Kitty. Here I found all in good working order, and a fair quantity of rich tin being returned. I should think from what I saw that at least costs are being paid, if not a profit. The meeting about due will give, I think, a good report. I next went to Blue Hills, which lays over the hill north-east of Wheal Kitty, at the bottom of a deep ravine, the stream running through which is employed for making the tin marketable, and I can only say that I am fully convinced from what I saw that the prospects of Blue Hills are such as to bear out the favourable remarks of the captain at the meeting that—"There is every appearance of opening out a good profitable property," and the fact of Penhalls set being now annexed to Blue Hills makes it very valuable. Up the ravines east side some 350 ft. high, and at about  $\frac{1}{2}$  mile on the level surface above is East Blue Hills, a mine just now causing a stir in the district. I had been

talking of this mine and its prospects to several during the day, and from what I could gather from working miners it is plain that practical men hold a good opinion of its prospects. With the permission of the captain I went underground, and may here remark that I found no need to change either my trousers or walking boots. The water in the mine is very slight indeed, and I should say the engine is ample to work the mine at least 50 fathoms deeper. The lode is a strong, well-defined large one, and the ore in sight is fully worth the moderate value placed on it, if I might judge by what I saw in other mines; and the opinion of both Captains Bennetts and Michell that I formed was that they are both good practical men, in whose hands the property is safe, while the riches of the mine are self-evident. After a wash, &c., I had pointed out to me the positions of the two adjacent mines to north and east—North Blue Hills and Prince Royal, both so situated that no doubt seems to be held as to their ultimate success at an early date. I then made my way back to the Commercial Hotel, where I met with every comfort, and tried to get hold of a few East Blue Hills at the prices quoted in the papers, but failed to do so. I may say afterwards at Truro and Redruth I picked up a few a little over quoted prices, but for delivery at one and two months' time. This point is worth taking note of. Next day my first object of interest was West Kitty, situate on the top of the hill on which St. Agnes town is built, and separated from the hill on which stands Wheal Kitty by a deep ravine, some 300 ft. deep. Some rich work was being drawn at the time, and its appearance at once explained the fact of returns being made at one-half profit. I selected easily some of the richest stones of tin I ever saw.

Without doubt this is one of the richest mines in the county, and it seems a pity that the present controversy should have come about. To me it seems strange that both parties, alike all honourable business men, should so far forget what is due to the district. I fully believe no ill was meant by the remark first made, as it only repeated a plain fact, which everyone who read Captain Vivian's reports must have known. The complications of argument since perpetrated could have been avoided by a friendly explanation. I agree that the truth was told in the first instance, but only the naked truth. Did the other parties accept the fact, and explain the truth by letting all know that while at the 80 fathom the mine of the present set is bottomed for that lode, yet between the 72 and 80 fathom levels owing to the flatness of the lode there are, in fact, 56 fathoms of backs, not the few fathoms spoken of. Besides this there are some 15 fms. further to explore, and may be the lode may alter its underlay again in it. Now, taking the shares at market price, and that the present rich work continues, even in present boundary the holder will not only get his capital returned, but 10 or 15 per cent. on his money; besides, the sett can be extended, and the present so-called 48 fathom (but really, counting from the 72, 128 fathom level) sunk, or rather driven deeper. From what I could gather full confidence is felt in the district about the mine, and the recent fall came about more from the large sale of shares than from the fear of the mine giving in. I next went to Trevaunance. This is a wonderful district, and the vast debris shows that work of no little moment has been done above adit; in fact, the set seems as if turned over by an earthquake. I went down and explored some miles, I may say, of levels made by the old men, and the ramifications showed that they must have been successful; in fact, the whole country rock, not only the lode, is and has been alive with tin more or less valuable. I as a shareholder was much pleased with the work done, and the appearance of the copper lode in the 55 east. From its look west I should think a change to tin not unlikely. I may remark that in the district the lode is and has been worked on as a tin not a copper lode. No doubt the rich copper will be followed by tin before long. The engine and engine-house are everything to be

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### THE MASON COLLEGE, BIRMINGHAM.

SESSION 1885-86.

#### MINING DEPARTMENT.

Professor W. E. BENTON, Assoc.R.S.M., F.G.S.

THE SESSION COMMENCES ON THURSDAY, OCTOBER 1ST.

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GEO. H. MORLEY, Secretary.

#### IMPORTANT TO MINE OWNERS.

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WARSOFT HILL, ENGINEERS, NOTTINGHAM.

desired, and I feel that ere long we shall be rewarded for our patience.

Polberro I had not much time to examine, but seeing how it is situated it cannot fail to produce good fruit in due time.

New Kitty also I feel ere long will answer the helm, and having machinery already can at once become a returner of tin if not dividends. At West Polberro good work is now being done, and after the engine is fixed, and other matters made complete, no doubt it will also be another prize at St. Agnes; in fact, the whole place seems a great mass of mineral veins and deposits. Leaving St. Agnes I reached the Redruth district, and Pedn-an-drea is no doubt the coming mine in this district. From what I could gather the mine is worked in a minerlike manner coupled with the same sound financial spirit that, with the exception of Wheal Kitty, every mine at St. Agnes is conducted—that is, "Cost-book and No Credit." At Pedn-an-drea the plant and machinery is extensive, and equally as well planned as at West Kitty, every modern improvement being there, the magnificent 72-in. engine being a specimen of work, while the 32-in. is equally as good in its way. The stamps engine and stone-breaker seem to do their work well, and, above all, the lodes underground are all that could be wished for short of being fully developed. The plant, &c., on the mine must have cost 25,000*l.*, and yet the shares are neglected for more publicly known mines of not one-tenth the value of Pedn-an-drea. I also went over the floors, &c., of Killifreth, and no doubt this mine, if not so bouncy, would become a favourite. The plant, burning-house, &c., are in good condition, and no doubt the mine will again and again benefit the man who speculates. I fain would speak of a few others, but have already trespassed too long. I only wonder why shareholders do not go down and see for themselves their mines, and the beautiful scenery of Cornwall and Devon.

J. B.

#### CORNWALL MINERS' ASSOCIATION AND INSTITUTE.

SIR.—You are aware that the Cornwall Miners' Association and the Cornwall Mining Institute no longer exist as distinct societies. They were amalgamated a few months ago, and very properly so. There were too many societies in the county.

The annual excursion of the society took place yesterday, September 1st, when the members met at Lostwithiel railway-station, and proceeded thence by five carriages to Restormel Castle, which was built about 600 years ago, but is falling into decay; and no attention is given to preserve it. Being, however, substantially built, its existence will extend into the distant future. Mr. R. H. Williams, C.E., favoured the company with a brief history of this relic of antiquity. It is covered with ivy, and surrounded by a moat, which has been lately cleared of underwood. The castle stands at a considerable elevation above the River Fowey, which flows at the base of the hill on which it is situate; but there is a considerable further rise westward of the castle—probably 150 ft. more—which affords a very extensive and picturesque view of the country around. The site of the castle is an admirable site for a mansion. Restormel is a large estate, the property of the Duke of Cornwall; but it is said that the late Lord Robartes purchased a lease of it, whether for lives or for a certain term I never heard. In walking up the hill from the castle to meet our carriages on the top, we passed several deep and extensive excavations made by the late workers of Restormel Iron Mine. The works were carried on here in very remote times; Messrs. Taylor and Co. had them for a long time, and since they abandoned them another company worked at a loss. No profit can be made of Cornish iron ore at the present price of the metal. The tramway in the adit and to the wharf at Lostwithiel still exists *in situ*. The adit is nearly a mile in length. The Queen went through it in 1846, when she visited numerous places in Cornwall—viz., Fowey, Truro, and St. Michael's Mount, also Botallack Mine, into which she descended.

The road from Restormel Castle to the next place of inspection—viz., Mulberry Mine—is very hilly and indirect. Mulberry is not strictly speaking a mine, but an open working—a great quarry—which has been in operation as a tin work for a long period. It is the largest excavation in Cornwall except Delabole Slate Quarry. Its depth is about 20 fathoms. There are two adits into it—one at 10 fathoms depth, through which the tinstone is conducted over a tramway to the stamping mills, one worked by water and the other by steam power. The stamping power consists of 130 heads, all of which in the winter months are lifted by water-wheels, one of 50 ft. diameter, and others. The 50-ft. wheel and the steam-stamps are near the outlet of the 10 fm. adit. The 20 fm. adit discharges the tinstone near water-wheels in the valley. Capt. David Cock, about the year 1881 paid 13,000*l.* for this tin work, which at the then price of tin was considered reasonable; but, unfortunately for Capt. Cock, the price of tin went down to so low a figure that no profit could be made on the working, but a loss if steam-power were used in the reduction of the stone. At the present price of tin a small profit can be made by water-power stamping. The quarry is in the slate formation, and the tin is contained in the interstices of the rock in the proportion of about 6 lbs. to the ton, to obtain which the whole mass must be subjected to pulverisation. There is no lode, but it seems that some portion of the rock is more productive than other portions. The quarry is entirely unfenced; a fall into it would be certain death.

From this place we wended our way to Bodmin. In passing the asylum, some one remarked that he thought it a very fit place for some people connected with mines; and that the prison, not far off, would be another fit place for other mining people. Of course, these were jokes. We did not stop in Bodmin more than two minutes. We arrived at Lanhydrock about a quarter to two o'clock—15 minutes later than the appointed time.

The Right Hon. Lord Robartes, the President of the United Society for the current year, had kindly invited its members to lunch with him at his seat yesterday. We were very politely received at the door by Lord and Lady Robartes, and their two little sons; and after the interval of about half-an-hour we were introduced to a room containing two long tables overspread with viands of all descriptions, of which, after grace was said by Mr. A. P. Vivian, we partook with a fair appetite. After the repast, we had the usual toasts, given by his lordship, which were duly honoured. Speeches were made by Mr. Vivian, Captain Teague, and Captain Josiah Thomas. Captain Teague spoke better than I ever heard him before. I cannot quote all that was said by those gentlemen. It was good.

Lanhydrock House, which was partially destroyed by fire a few years ago, has been restored and enlarged. Over the door of the right wing, which was not affected by the fire, is the date "1632." Over the door in the other wing is the old stone bearing date "1644." The building is probably the most commodious of any in the county, and contains rooms of singularly large dimensions for a private residence. One room, the gallery, is 120 ft. long. It contains many portraits of his lordship's ancestors, and one containing the portraits of his lordship's four children—two boys and two girls—who looked very pretty. This painting, or drawing, is said to have been executed by a lady. It is not probable that an heir will be wanting for Lanhydrock estates for generations to come.

There are several cases of books in the gallery, many of very ancient date, amongst them being the original text, in Latin, of the Domesday book. One would like to spend a day or two in looking into the rare works contained in those libraries. I observed that the ceiling of this room, which is circular and on the first floor, contained, in relief, some scripture illustrations. There was time only to have a glance at the manifold subjects and objects presented as we passed in review through the building, so that it would be useless to attempt any general description of them.

I was informed that the restoration of the edifice, and refurnishing it, cost about 100,000*l.*; but such an outlay, to a man of his lordship's means, was not felt, because he had an enormous sum receivable "on demand," and has an income from land of about 50,000*l.* per annum. You may remember that the fright occasioned by the destruction of the building caused the death of the late Lady Robartes, and her husband died about 12 months afterwards. The last time I saw the good man was at Truro station. The secretary of this useful Association, Mr. William Rich, jun., deserves

great credit for the perfect arrangements he made for this excursion, in which all the members had great pleasure, which, I hope, will be repeated in 1886.—*Truro, September 2.*

R. SYMONS.

#### MINING AT WILD RIVER, NORTH QUEENSLAND.

SIR.—There is a decided improved activity in the mining industry since my last letter, which very probably owes its cause to the rise in the quotations of tin. Several abandoned claims have been taken up, and tin got in all of them, which circumstance bears out former assertions that depth, which means capital, is all that is necessary to make this one of the premier tin fields known. It is now only about five years since the first settler came here, and although a rush soon followed there were very few who knew much about tin until after the first six months, and even then the number was very limited, yet the quantity of tin sent away the first 12 months was something enormous. To day the mining extends over an area of very many miles, and, taking the district generally, the tin percentage equals on the average anything known. As a tin-producing area the capital introduced by one or two companies has not been large in ratio with the outputs, but capital in the shape of labour was extensive to have produced the quantity of ore. But this labour commenced at the surface, and it was only when the working mineowner got down to a depth that he discovered that he was compelled to abandon his claim because he had no coin, and his labour was insufficient for the purpose. The principal tin mine, the Great Northern placer claim, owned originally by four persons, has paid its way from the start, continually giving fair dividends, and the first outlay that has been made is for hauling machinery, now on the road. One of the shafts is down 220 ft., and there is sufficient stone raised from this claim to keep a machine constantly crushing. There are several other claims contiguous to it all looking to become equally good properties. The several mining (tin) centres are—Herberton, Watsonville, Coolgana, Emu, and Thompson creeks, Eureka creek, Irvinebank, where there is a smelting furnace, and five or six other localities branching off from that place. It is asserted with much truth that at no acknowledged tin field have the drawbacks and difficulties been so great as have been experienced here in the shape of carriage and high wages. Yet it is daily advancing in greatness and importance, and by the time the railway will reach here be the resort of a large mining population.

But our silver resources are becoming daily more developed. The already famous Albion claim maintains its speedily earned reputation, as also its companions, the Barossa and others, belonging to Messrs. J. Moffat and Co., who are about to erect smelting works. Several new silver properties are now being worked; one of these has assayed from 90 to 1440 ozs. silver to the ton. Silver ore is being traced in different parts, and workings being tried. At the original silver country (Newellton), where there is also a smelter, a company is expected to work shortly on a large scale, and other claims at the same locality are also being worked. As I wrote elsewhere the capital utilised in tin and silver is exceedingly limited as compared to what I read in your Journal as being expended on similar mines. If the tin and silver results are carried on successfully here with limited means, what would this portion of North Queensland be if a fraction of your unlimited capital were ventured here. With English capital in our mines, or on tin alluvial leads, there would be room enough for your surplus miners to be comfortably located. There will be strong inducements to effect this. The contemplated railway will come from the Port of Cairns, and into this port the British India Company's steamers will be berthed regularly, so that tin or silver will be easily transmitted to England at a minimum cost. British mining managers will have no difficulty in making visiting trips, and I can assure you that when any of these do come they will find as fine mining properties here as in Mexico, or any other part of the world, and become acquainted with a jolly lot of miners who only know English law.

A School of Mines will probably be established this week. Preparations are progressing to be well represented at the Colonial and India Expedition next year.

EDWARD MYERS.

*Herberton Advertiser Office, Wild River, June 28.*

#### THE VICTORIA GOLD MINE.

SIR.—In your issue of the *Mining Journal* of the 15th inst. I read letters from several gentleman bearing on the present and future prospects of the Victoria Gold Mine, Venezuela. I beg to state that I visited this mine the latter part of December, 1883 (just the time I left the El Callao Company's employ), in company with Vice-Admiral Powell, one of the directors of the company, by whose request I inspected and reported on this property, and asked the favour at the outset of my remarks, to be allowed to congratulate the shareholders on their property, and to state that I did not consider this a speculation in the ordinary sense of mining terms, but a *bona fide* investment if in the hands of a practical and energetic manager, having a thorough knowledge of gold mining in all its branches.

There is an enormous quantity of quartz, which is estimated to be over 100,000 tons, from the outcrop of the east and west lode, a large quantity of which has fallen from the back of the lode, and has gravitated towards the bottom of the Quebrada, a large portion of which shows free gold. I have picked up pieces that would assay from 2 to 5 ozs. per ton, and I have one piece in my possession that would assay 30 ozs. to the ton. This mass of quartz awaits transit down an easy incline by tramway to a mill site well adapted by Nature for that purpose, at which place there is plenty of water for milling and amalgamation, and ample wood for steam and mining purposes within half a mile for the next 20 years. This property only waits an outlay of sufficient capital to erect a 40-head stamping-mill, with a 50-horse power steam-engine, tramways, &c., and the intersecting the east and west lode at the present adit, a distance of 130 ft. under the large outcrop referred to, to ensure a dividend-paying mine for years after the first 12 months. I consider 30,000*l.* working capital ample for all purposes mentioned, and of this amount a sufficient sum would then remain to carry on the mine in a legitimate manner. There are other lodes on the property, with occasional stones showing free gold of almost equal importance with the one named, one of which runs north and south and intersects the east and west lode just at the large outcrop before mentioned.

JAMES PENBERTH.

*East View House, Lelant, Cornwall, August 31.*

#### SUSPENDED MINES.

SIR.—There are some mines so utterly worthless that they never ought to have been opened, and there are others having real intrinsic merit which never ought to have been given up. As an ordinary rule, and in ordinary times the good stand their ground, and the bad go soon to the wall. But these are not ordinary times. The depression existing in mining is greater than known within the memory of any living person. For many years I have contributed to the *Mining Journal* early in each year a list and statistical accounts of the dividend metalliferous mines of the year preceding. This year I omitted to do so, as the British dividend mines of the year, 1884, could hardly be made into a list. They might all be counted on the finger tips. "The darkest day will pass away," and "the longest lane has an end," are old sayings founded on wisdom and experience, and I believe mining is sure to improve. The oldest industry of this country is not going to collapse. In a few years, or perhaps in a few months it will emerge like the Phoenix alive from the embers, purified, brighter, and as vigorous as ever. It is, however, very grievous to see, month after month, good mines suspending, and the proprietors closing their affairs, not worthless concerns, but mines that have stood on their own merits for years, and would, in all probability, have turned the corner from the progressive to the dividend state, but for the present depression. There are many mines that have suspended of late whose history would be worth recording, and it would be both instructive and useful, if the secretaries, purser, or others having the information would compile some accurate account of the undertakings, and would contribute them to your valuable

Journal. When the times take a turn these mines are "ure to be again worked, and a record of the past would be the best of all guides for the future. I have from experience found it no easy matter to get at the records of the past work of mines. The books of old companies are inaccessible after a mine is stopped, and a complete set of circulars issued by a company an impossibility to get hold of. If records of the past were available for new companies started to rework, we should probably see in prospectuses more of facts and less of fiction than we sometimes find. It is in the province of most secretaries having books, papers, and documents before them to give, in a short form, a reminiscence of good mines that suspend, not for want of merit, but for want of present funds, and if these were contributed to the *Mining Journal* they would be available for future reference. As an instance of my meaning, I send you an account of the Cathedral Consols Mine just suspended, and it is in my power to follow this by particulars of one or two more. I trust others may take the hint given. A number of sketches from different pens collected would make a useful work.

EDWARD ASHMAD.

*2, Drapers' Gardens, London, September 2.*

#### NEW HOLMBUSH MINE.

SIR.—There has been a great deal of private enquiry within the last 10 days why there was no ore sold from Holmbush the last Ticketing, so I beg to answer all enquirers through the Journal. It is not that they had less tons than heretofore, but on account of the manager finding a better market outside the Ticketing-room. The Flap-jack lode is producing some very good tin at present, and from its appearance it is likely to become a great tin mine as depth is attained. Messrs. Holman Brothers are now sinking the engine-shaft below the 175 fm. level with boring machinery. They sunk the last three weeks 16 ft. 6 ins.; first of the three weeks, 4 ft.; second, 5 ft. 6 ins.; third, 7 ft. This shows that as the men are getting more acquainted with the work and the place, the better they are able to get on. I wish them every success.

*Callington, Sept. 3.*

JOHN BUCKINGHAM.

#### THE BALKIS COMPANY.

SIR.—The circular of the Balkis Company to its shareholders, dated August 23, but issued on Saturday evening, August 29, evinces such a contempt for the intellectual capacity of the shareholders that it demands some little attention from them. It is a defence of Colonel McMurdo against the evidence narrated in my circular.

What is the defence? It is as follows:—Colonel McMurdo received, as promoters' profits, many hundreds of thousands of shares and debentures; shares and debentures are "only paper," and "again paper," therefore he received only paper profits. Five times is that so-called argument reiterated. What, then, I ask in reply, did the shareholders receive for the hard cash which they subscribed? "Only paper."

But, say the directors, "the present market value of the (Balkis) shares is sixpence each," and afterwards they assert that "the present value of 12,600 shares is 630*l.*," which I take to be a shilling each—which is it, a shilling or sixpence? Either way it is poor comfort for shareholders who have bought their shares on an average at 4*s.* 6*d.* a share.

Before leaving the "paper" argument I may mention that Colonel McMurdo has sold enormous quantities of the "paper" shares, and I have been told that he sold them mostly at four shillings a share, while the shareholders have kept their "paper." So Colonel McMurdo's were not "only paper."

The board say that my circular "abounds in misstatements," yet they are the recorded evidence of the officials of the company, and the board have not pointed out one single misstatement; on the contrary, the board's circular is additional evidence in support of my circular, as anyone may see who will carefully compare the two.

But, say the board, the committee was not appointed to investigate, but to reconstruct; for "no committee of investigation was appointed." Do the board forget that, before I allowed my name to be added to the committee, I distinctly stipulated that it should investigate. The board are very much afraid of investigation now, because they see what ugly facts have already been brought to light. But what were the views of the board in their circular of August 10? "At the first meeting of the committee, it evinced a desire to examine fully into the past proceedings of your board, and into the general affairs of the company. Your directors very cordially fell in with this wish of the committee, and furnished it with all the papers in their possession, and gave it every assistance in their power. After careful investigation and much consideration, the committee recommended a plan of reorganisation." Yet the board now complain of the committee for having investigated. The board say that the other members of the committee have repudiated the report. I am not aware that they have done so. The majority of members were certainly under the McMurdo influence, and yet I have not heard of their having repudiated it; while Mr. Jeffreys was, up to the end, an ardent supporter of it, and endorsed all its statements most unreservedly. The board labour to show that Colonel McMurdo was under no obligation to pay 25*l.* per share on the South African Syndicate shares converted by him. The supposed proof will not stand investigation; nor will the supposed facts, which they adduce in evidence, admit of proof. But even if they should, how will that free Messrs. Mockford, Malleson, and the rest, who converted upwards of 1000 South African shares, without paying the 25*l.* per share? By their not doing so they starved the Balkis Company, which had never any real capital except that contributed by about 800 South African shares. It is to be hoped that similar transactions will not be perpetrated in the new company. But I must confess that a letter to me from London openly asserts that an offer has already been made to the writer of it to give him new shares, fully-paid, for the proper number of Balkis shares; so that he would escape having to contribute to the capital of the new company. Under the head "Graskop," it must be observed that my statement of the evidence is practically reiterated, but in a confused manner. The property was bought from Holland for 95,000*l.*; from Hoare, for 198,000*l.*; and from McMurdo, by the Balkis board, for 300,000*l.*, all on the same day and in the same room; while the Balkis shareholders were charged 315,000*l.* for it; and besides this, they gave Hoare debentures for 15,000*l.* and gave McMurdo bills for the same 15,000*l.*

Now we come to my supposed "childish and vacillating conduct." The circular of the board, of August 10, said that, on August 5, a contract had been agreed upon between the committee of investigation and the board. That is true. The next day I came here and received a telegram, from which I learned that another contract had been substituted after the notices had been sent out, and after the committee had closed its labours. Did that not justify me in suggesting caution to the shareholders? I had recommended the former contract. I did not wish that to be taken as a recommendation of a new contract, which I had never seen. The day of the general meeting (August 14) I went through the new contract and approved of it, and said so at the meeting. That conduct the survivor for the board calls "recanting."

The board further say that I then entreated the shareholders in a second edition of my pamphlet "not to confirm the resolution." That is a most unmitigated falsehood, as anyone may see who will look at my report. Anyone who cares to consider the matter may find, indeed, so many flaring falsehoods in the board's circular that he will conclude the whole thing to be utterly unworthy of credit.

Again, the board say, in regard to the fact that reporters were excluded—"In this statement there is not one single word of truth. Take your own case, Sir, and say, What is the truth?"

Lastly, the board assert that Colonel Malleson and McMurdo, on August 5, demanded an investigation, and that I "pleaded the necessity of catching a train, and refused to comply, and made a strait movement towards the nearest railway station." That is also false. The board forgot their circular of August 10, in which they said that the investigation had already taken place. On August 5 the meeting of the committee was fixed at an early hour, so as to admit of my keeping an important appointment in the City, at 3:15 P.M. At that hour Col. Malleson and McMurdo came in, just as I had put on my hat, and were preparing to go away, and they mumbled something about



the industries peculiar to Sheffield, yet there has been an improvement in trade generally. An increased production of steel has taken place of late, both Bessemer and crucible. Some fair orders are in hand for rails, one amounting to between 3000 and 4000 tons for exportation, whilst the Midland Company has given out a heavy contract for axles. Bessemer is also being taken for converting into some kinds of tools as well as cutlery, in addition to the considerable quantities absorbed for various kinds of forgings. Crucible steel has been in fair request for plates and heavy castings, but the demand is still considerably below the productive power. The mining tool branch is not so good as it was, and this is the case even such small matters as picks, hammers, and wedges. Business at the steel wheel works is of a moderate character, but there is a steady output of spring steel, as well as that suitable for implement makers and machinists, a good deal being for exportation to Canada and other countries. The two works engaged on armour-plates continue busy on them, and the requirements for their production—both iron and steel—will be heavy for several months to come. At both places there is, however, a good deal of other work being done, and a vast body of workmen at the Atlas Works are doing a good deal in forged steel wheels and in general rolled metal. The Cyclops Works, in addition to the armour-plate department, there is a fair amount of business doing in other kinds of mill material, whilst the company's large establishment at Penistone has been running well on Bessemer rails and ordinary steel forgings. Some of the cutlery houses have shown an improvement of late, and a little more appears to be doing on American account, but the demand is not so heavy for the highest class of goods, the price of which has advanced considerably during the year, owing to the increased cost of ivory and pearl, and which has also had the effect of making even stag haftings dearer. Machinery of a light description is in rather better request, especially that for the manufacture of aerated waters for the Continent. The foundries, too, as a rule, are rather better off, more particularly those engaged on pipes and stove grates, whilst railway wagon builders are doing more in new work.

The strike at the collieries in the Ilkeston district, in Derbyshire, was brought to a close on Wednesday, the Cossall men having come to an understanding with the company after those at the other collieries had come to terms. The strike lasted about two months.

#### NORTH AND SOUTH STAFFORDSHIRE.

*September 3.*—There is no decline in the increased demand which during the last two or three weeks has appeared for house coal, though at present the collieries are not called upon to work longer time. The forge and mill coal have better prospects before them, not only because the iron trade is looking up somewhat, but because the advance of the season will lessen the competition experienced by the Staffordshire pits proper from the Cannock Chase Mines. Staffordshire forge is 5s. 6d. to 6s. 6d. per ton. Cannock Chase selected furnace 7s. into boats; Staffordshire furnace best 9s. to 9s. 6d., and new mine coal 8s. The revival in the pig-iron trade continues, and consumers are more anxious than for some time past to enter the market. They are, however, checked by the firmer prices which vendors now demand. An advance of between 1s. and 1s. 6d. per ton is this week asked for Derbyshires, and this brings the price up to 39s. 40s. per ton. Lincolns are strong at 41s. 6d. delivered to stations, and South Yorkshires are 50s. Forge hematites may be had at 52s. 6d. Staffordshire part mines at 40s. to 45s., and cinder sorts 32s. 6d. to 35s.

Finished-iron masters are in better spirits than for several weeks past. A few sheet firms report more enquiries in the past ten days than during any similar period for the last eight or nine months. Such firms are this week asking an advance of between 2s. 6d. and 5s. per ton. Thus, galvanisers doubles have become 7s. 2s. 6d. to 7s. 5s., and trebles in proportion. Galvanised corrugated sheets maintain the advance of 5s. declared a week ago, and ordinary sorts are now quoted about 11s. per ton delivered Liverpool. Superior qualities are quoted 12s. 5s.

#### LANCASHIRE.

*September 3.*—During the past week an improved tone has characterised the Iron Trade of this district. There has been more business stirring, and although it can scarcely be said that any material advance has been established in prices, there has, if anything, been an upward tendency so far as pig-iron is concerned. Buyers who have been holding back are now finding it difficult to place orders at the low prices which sellers have recently been willing to accept, and offers are coming forward more freely and at better prices than buyers have of late shown a disposition to give. The increased business now coming forward is not, however, due to any expansion of requirements for actual consumption, but to a growing conviction that prices have got to the lowest, which is inducing greater eagerness amongst merchants to cover sales already made, and amongst consumers to renew expiring contracts. Lancashire pig-iron makers are firm at 38s. to 38s. 6d. less 2½ as their minimum for delivery equal to Manchester. In district brands there has been some attempt at an advance, but this has only been realised to a very partial extent, and the average prices for delivery here remain at 38s. to 39s. less 2½ with iron still to be got at 6d. under these figures. For Middlesborough iron about 3d. to 6d. per ton above the recent minimum quotations is being asked, but Scotch iron can be bought at late rates. Hematites are without change, and are still quoted very low. Finished iron shows no material improvement, and prices remain at 5s. 5s. for bars, 5s. 15s. for hoops, and 6s. 15s. for local-made sheets.

In a few odd cases engineers report that they are rather better employed, but the general tendency is still in the direction of decreasing activity.

With the exception that the better qualities of round meet an increasing demand for house fire consumption, the coal trade is without improvement; for general trade purposes requirements are extremely small, and prices are unaltered from last month. Of course it is only to be expected that the enlarged requirements for house-fire consumption incident to the season of the year should stimulate more activity in the better qualities of round coal, but this has not yet shown sufficient development to appreciably affect the market, and many of the house-fire coal collieries are not working more than three to four days a week. The average prices at the pit mouth remain at about 8s. to 8s. 6d. per ton for best Wigan Arley, 7s. to 7s. 6d. for second qualities, and 6s. 6d. to 7s. per ton for Pemberton Four-feet. Common round coals continue very bad to sell for iron making and steam purposes, and in some instances sellers are prepared to take almost any price to effect sales, the average quotations at the pit mouth remaining at 5s. to 5s. 6d. per ton. The small quantity of round coal being screened tends to prevent supplies of engine fuel becoming a drug, and at some collieries the better qualities of slack are rather scarce. The demand for mill and general manufacturing consumption is, however, only of a very restricted character, and common sorts of slack are abundant in the market. At the pit mouth burly averages 4s. 3d. to 4s. 9d.; best slack, 3s. 6d. to 4s.; and ordinary descriptions, 2s. 6d. to 3s. per ton. Shipping generally is only quiet, and for steam coal very low prices are quoted at both Garston and Liverpool. The proposal to go in

for an advance of 15 per cent. in wages has been unanimously adopted at a special conference of miners' representatives held in Manchester, and if necessary, to secure this end, the whole of the mining community is to be called out on strike.

#### SOUTH WALES.

*September 3.*—The shipments of coal last week at Cardiff again suffered a declension, while at Newport and Swansea trade was well maintained. Cardiff sent away 118,366 tons foreign, and about 25,000 coastwise, with 4600 tons patent fuel; Newport, 32,158 tons foreign, and 20,988 coastwise; Swansea, 19,356 tons foreign, and about 12,000 tons coastwise, with the large quantity of 12,942 tons patent fuel. There are, however, complaints all round of the slackness of trade, not only at the docks, but at the collieries. The large consignments of coal to the various ports in the months of May and June were intended to provide for an eventuality which did not take place, and, therefore, there can be no hope for a repetition of that activity. House coal does not show any movement at present, but the time is approaching when it must do so. Quotations range from 8s. to 8s. 6d. Small coal and patent fuel are in excellent demand.

The Naval Collieries, at Penygraig, will be closed during the next three months, but advantage will be taken during that period to open out new headings, so as to shorten the distance the coal will have to travel. This is the result of the unfortunate strike, which might have been averted by a little conciliation on both sides, and has thrown about 600 on the labour market. The iron and steel works remain in about the same quiet condition. Last week Cardiff exported 2100 tons and Newport 1300 to Sundswall. Iron ore has arrived at Newport to the extent of 16,715 tons, and 6582 from other places; Cardiff received 5888 tons from Bilbao, and 379 from other places. Orders for tin-plates are now coming in more freely, and at 14s. 6d. makers will entertain business; common cokes are about 9d. lower.

#### FOREIGN MINING AND METALLURGY.

Prices have remained very low in France, merchants' iron cannot be carried beyond 5s. 8s. per ton. The Orleans Railway Company has ordered 3000 tyres from the Comptoir Works. The French Departmental Railway Company has ordered five tank-engines of 16 tons each from the Couillet Company (Belgium), at 97s. per engine. A French firm required 980t. per engine, and its tender was rejected. The imports of iron minerals into France in the first seven months of this year amounted to 791,393 tons, as compared with 790,499 tons in the corresponding period of 1884, and 956,827 tons in the corresponding period of 1883. In this year's imports German iron minerals figured for 297,146 tons, Spanish for 329,542 tons, and Algerian for 84,897 tons. The exports of iron minerals from France in the first seven months of this year were 56,046 tons, as compared with 60,475 tons in the corresponding period of 1884, and 59,066 tons in the corresponding period of 1883. The German iron trade has been weak, but prices have not shown any downward movement. In the first half of this year Germany exported 95,122 tons of pig, 70,407 tons of iron, 64,555 tons of rails, 82,024 tons of wire, and 4519 tons of axles and tyres. The report of the Laura Company (Germany) for the year ending June 30, 1885, shows that at that date the company had orders on hand to the extent of 30,000 tons, representing a value of 157,500t. The demand for rails having fallen off, it was not possible to keep the company's rolling-mills fully occupied in 1884-5.

The Belgian Iron Trade remains in a state of extreme depression; in fact, there would appear to be, if anything, a growing weakness of prices, and an increasing scarcity of orders. The Belgian Vicinal Railways Company has not approved, it appears, a recent adjudication for rails. The production of casting-pig in Belgium in the first half of this year was 38,625 tons, as compared with 28,339 tons in the corresponding period of 1884, showing an increase of 10,286 tons this year. The production of refining pig in the first half of this year was 252,299 tons, as compared with 277,696 tons in the corresponding period of 1884, showing a decrease of 25,397 tons this year. The production of pig for steel in the first half of this year was 64,547 tons, as compared with 71,461 tons in the corresponding period of 1884, showing a decrease of 6914 tons this year. It follows that the aggregate production of pig of all kinds in Belgium in the first half of this year was 355,471 tons, as compared with 377,496 tons in the corresponding period of 1884, showing a decrease of 22,025 tons this year. The total production of iron in Belgium in the first half of this year was 227,862 tons, as compared with 230,122 tons in the corresponding period of 1884, showing a decrease of 2230 tons this year. In these totals rails and plates figured for 51,693 tons, and 57,113 tons respectively. The balance was made up of miscellaneous iron. The production of steel rails, plates, &c., in Belgium in the first half of this year was 46,952 tons, as compared with 71,375 tons in the corresponding period of 1884.

Contracts have been let for 250,000 tons of coal required for the Belgian State Railways. The contracts were given out for 50 lots of 5200 tons each. Orders were also given out at the same time for 9000 tons of forge coal in two equal lots, as well as for 1700 tons of coke. A firm tone has continued to prevail in the Liège coal trade, and prices have been rather higher than those current at Charleroi. It is noticed, however, that both the Liège and Charleroi tenders for the coal required for the Belgian State lines were submitted at slightly lower rates than those named in the last previous tenders which were sent in June, 1885. The production of the Belgian collieries in the first half of this year was 8,453,858 tons, as compared with 9,010,695 tons in the corresponding period of 1884. The number of collieries in activity this year was 146, as compared with 148 a year since. It will be seen that there was a diminution in the production this year of 556,837 tons, or nearly 6 per cent. The number of trucks carrying coal and coke which passed over the Belgian State Railways in the week ending August 23 was 16,917, as compared with 16,723 in the corresponding week of 1884. The production of coal in Germany in 1873 was 36,392,280 tons; in 1883, it had risen to 55,943,004 tons. The value of the production of 1873 was 20,182,264t.; that of 1883, 14,681,422t. The production of lignites in 1873 was 9,752,914 tons; in 1883, it had risen to 14,499,644 tons. The value of the production of 1873 was 1,731,328t.; that of 1883, 1,950,034t.

From a return of the coal duties at 4d. and 9d. per ton received by the Corporation of the City of London, it appears that a sum of 167,374t. was obtained last year from the 4d., and 376,592t. from the 9d. The major portion of these sums was expended on account of the Thames Embankment and the Metropolitan Board of Works Improvement Fund. An account prepared by the Metropolitan Board of Works showed that their interest in the coal duty at 9d. produced 302,787t., and the wine duty 9396t., which sums had been devoted to the repayment of loans.

**HOLLOWAY'S OINTMENT.**—Go where you may, in every country and in all climates persons will be found who have a ready word of praise for this Ointment. For chafes, chafes, scalds, bruises, and sprains it is an invaluable remedy; for bad legs, bad breasts, and piles, it may be confidently relied upon for effecting a sound and permanent cure. In cases of puffed ankles, cramp, and rheumatism, Holloway's Ointment gives the greatest comfort by reducing the inflammation, cooling the blood, soothing the nerves, adjusting the circulation, and expelling the impurities. This Ointment should have a place in every nursery. It will cure all those manifold skin afflictions which originating in childhood gain strength with the child's growth.

#### Meetings of Public Companies.

##### THE WICKLOW COPPER MINE COMPANY.

The ordinary meeting of shareholders of the company was held at the offices, Grafton-street, Dublin, on Monday, for the purpose of receiving the directors' report and accounts.

The chair was occupied by Mr. C. CUMMINS, Deputy Chairman. Mr. THOMAS BAKER (the secretary) read the following report:—In October last the accounts have been made up to the 30th June (covering a period of ten months from the last statement), and they are now submitted to the shareholders. It will be seen that after paying all charges there remains a net surplus of 1616t. 11s. 3d. on the working of the period, which amount has been carried to the credit of profit and loss. The Arklow manures are steadily progressing in favour of the agricultural community, and the arrangements which the directors are making to ensure a very much larger sale next season are certain to result in a substantial profit to the company. A considerable outlay has been made on the ochre plant, and the company has been thereby enabled to produce a marketable ochre of uniform quality in quantity, and at a reasonable cost. Already a couple of cargoes have been sent to England and several parcels to Scotland, and negotiations are in progress with English ochre, and who are prepared to push the sale of it in preference to any other ochre of the same character. The plant and buildings at Arklow have been not only maintained in good order, but many valuable additions and improvements have been made to them, and all the machinery and appliances at the mine have been cared for. The directors retiring by rotation are Messrs. E. Breslin, J. P., and Charles Cummins, both of whom being eligible offer themselves for re-election. The outgoing auditor is Dr. E. Perceval Wright.

The CHAIRMAN, in moving the adoption of the report and accounts, said he might fairly congratulate them on the result of the last ten months. They had honestly and justly earned a very fair profit, and he was quite confident that on the next occasion he would be in a position to announce a very good dividend, which indeed they had already earned.—Mr. TYNDELL seconded the motion.

Mr. HUGHES criticised the accounts.

The CHAIRMAN briefly replied.

The reports and accounts were adopted.

On the motion of Dr. WRIGHT, seconded by Mr. JACKSON, Messrs. Edward Breslin and C. Cummins were re-elected directors.

The outgoing auditor was Dr. WRIGHT, and the CHAIRMAN and several Shareholders appealed to him not to retire.

Dr. WRIGHT having consented, a resolution was adopted reappointing him.—The meeting then terminated.

##### MID-DEVON COPPER MINING COMPANY.

The 15th ordinary general meeting of shareholders was held at the offices of the company, 72, Finsbury Pavement, on Monday,

Mr. THOMAS NICOLLS ROBERTS in the chair.

Mr. W. H. RICHARDS (the managing director) read the notice convening the meeting. The report circulated by the directors was taken as read.

The CHAIRMAN said: Gentlemen, at these meetings it is expected that the Chairman should offer some observations, but there is very little to add to what is clearly and concisely stated in the report, a copy of which has been sent to every shareholder, with the memorandum therein alluded to. We have given the shareholders an opportunity of protecting their own interests, but the response has been wholly inadequate to meet the necessities of the case. They have been informed that if they will not find the money the concern must be wound up, and by their silence it is clearly their desire that this should be the case—a desire that will most likely be gratified. One considerable shareholder sent a mining expert to inspect the mine on Friday last, but whether the report that has been furnished by the expert to that shareholder will induce him to take any steps I do not know. What the directors require is that at least 200 of the residue of the 6000 preference shares should be taken up in order that the mine may be thoroughly proved at the depth that has been already reached, or at the 100 fms., if it be considered desirable to sink the 2 fms. further to reach that point. I may be permitted to offer a few remarks as to our probable prospects, if the thorough proof of which I have spoken should be accomplished. In mining you can only reason from analogy and known facts. You can foretell nothing, and I shall make no attempt to prophecy, notwithstanding my own clear opinion. As you are informed in the report, we made everything subordinate to the sinking, and, therefore, kept the 50 fm. level untouched; so that, if anything happened to interfere with the sinking, we might put the men thus compulsorily driven out of the shaft upon profitable labour, and the event has justified our policy. You are told in the report that we have raised "from 3 to 4 tons of good copper ore weekly"; but, as a matter of fact, we have raised, during the last four weeks, an average of 5 tons weekly, and this from one stop. Now it is an admitted fact—that is no prophecy—that all large lodes (and I believe ours is the largest known lode) become richer and more concentrated as depth is attained, so anyone may judge what our position would be if the thorough exploration of which I have spoken were effected, and we had several stopes in work at the deepest point. My own opinion is that all the intermediate levels would pay, and pay well, if they were worked, but there would be a large amount of dead work to do before the ore could be reached. It may be said, if that is your opinion, why did you not try them instead of spending all this money upon sinking? My answer is very short. What we have done has been upon the advice of our captain at the mine, a thoroughly capable man, as has been proved by the report of all the experts who have inspected the mine. His advice has been to this effect:—"Sink to such a depth that you will be able to prove the intermediate levels without calling upon shareholders for any subscription." Now, Captain Neill, according to his means, is a large shareholder, and his faith in the ultimate productiveness of the mine is unbounded. Well, I said I would reason from analogy. There is a small mine—small I mean by comparison with ours—about ¾ mile south-east on the hill at the other side of the valley, called Wheal Emily. Their lodes run parallel with ours, and are in the same geological formation. They have, I believe, reached a depth of 107 fathoms. They have raised and sent to market a parcel of ore every month from April to August inclusive. The parcels have been small it is true, but the mine is small, and the working hands are few, but they have sent in the aggregate 111 tons, and the average price has been 4s. 6d. per ton, or nearly twice the average price of the entire quantity sold from all the mines sending ore to Truro during the same period, and during a great portion of the latter part of the five months they have been prevented from working the most productive part of their mine owing to the drought. We shall send a parcel of ore for sale at the next Ticketing, but I am not going to tell you that we shall sell for the same price, as our ore comes from the 50 fathom level, whereas that from Wheal Emily is raised from some 40 to 50 fathoms deeper, but if we should be able to work our 100 fathom level, I have no doubt that the quality of ore to be found there would be at least equal to that raised at Wheal Emily. My belief is that, even should copper remain at the low price now current, we should be able to work the 100 fathom level at a handsome profit. An output of 50 tons of ore per month would enable us to pay all our expenses of all kinds, and leave a small profit, and if one stope is yielding at the rate of 20 tons per month, with every prospect as Capt. Neill says, of continuing to do so, anyone may easily judge what our position would be if several stopes were being worked. And this is the concern which the overwhelming majority of the shareholders wish to abandon. It has been conducted for the last three years and a half upon principles of the strictest economy; the directors have not only taken no fees, but have provided the greater portion of the working capital. Holding a large number of original shares myself I have been naturally desirous to keep the concern going until it arrived at a paying condition, but as the other original shareholders will not lend a helping hand there is nothing for it but

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to wind-up the concern, for which purpose we shall, ere long, call the shareholders together, unless in the meantime we receive any proposition which may have the effect of averting such a catastrophe. In addition to what I have said I may just give you an illustration of the spirit by which the bulk of the shareholders are animated. Early in June three of the shareholders went down to the mine, and they saw the property. One of them said to the captain, "I should like to see the lode cut at the 100." Of course he would, and so like everybody.

Mr. HARRIS: Then let him give a helping hand to get there.

The CHAIRMAN: But that is what he will not do. That is a fair type of the bulk of the shareholders. The Chairman then moved the adoption of the report.—Mr. RICHARDS seconded the motion, which was carried unanimously.

Mr. HARRIS: Do you say that only a third of the shareholders are willing to subscribe?—The CHAIRMAN: No; only about a twentieth part.

Mr. HARRIS: What would you issue the shares at?—The CHAIR-

MAN: At the same price as those already allotted. I took and paid for about 1000. One shareholder, with a stake in the company amounting to 2<sup>1</sup>/<sub>2</sub> 3s. 4d. wants the company wound up. He is a member of the Stock Exchange.

The following report just received from the manager was read:—

Surface: Pumping machinery throughout in good working order, and a plentiful supply of surface water would quickly drain the mine to bottom of shaft. The little rain this week has not been sufficient to cause any lasting increase to surface water, but we may shortly expect sufficient for our requirements; the water is now to bottom of 70 fm. plat.—C Shaft: The stopes in back of cross-cut, north from 50 east, worked by 12 men, will now yield 2<sup>1</sup>/<sub>2</sub> tons of ore per cubic fathom, and is surrounded by strata that conduces to its continuance, being highly charged with mineral, and intermixed with large quantities of chlorite, hornblende, quartz, &c.; the deposit of ore is dipping towards the north wall of the lode and eastwards, and if it continues in that direction it will be necessary very shortly to resume the cross-cut north from the extreme end of the 50 east.—J.S. NEILL.

The CHAIRMAN said there was every reason to believe that the lode would improve in size and value as depth was attained. It would be seen that from one stope they had raised 6 tons of ore in the week, and it was easy to calculate what would be the result if they had several stopes at work.

The meeting then closed with a vote of thanks to the Chairman.

## LEVANT.

A 16 weeks' meeting of the shareholders in Levant was held on the mine, on Tuesday, Mr. RICHARD WHITE presiding. The labour costs were 5318L 8s. 9d.; merchants' bills, 1604L 5s. 7d.; coals, 329L 14s. 7d.; rates, 62L 13s. 5d.; interest and commission, 49L 8s. 3d.; balance in favour of the mine, 1692L 11s. total, 9057L 6s. 6d. The credits were—Balance in hand at beginning of the 16 weeks, 376L 16s. 9d.; tin sales, less dues (142 tons 15 cwt., 2 qrs. 4 lbs.), 6898L 11s. 1d.; copper (331 tons 9 cwt.), less dues, 1534L 12s. 1d.; arsenic (53 tons 9 cwt.), 234L 19s. 6d.; discount, 12L 7s. 1d.; total, 9057L 6s. 6d. A dividend of 10s. per share was made, which would take up 1192L 10s. and leave a balance in favour of the mine of 500L.

## WEST WHEAL FRANCES

A meeting of shareholders in West Wheal Frances was held on Thursday.—Mr. WALTER PIKE (the purser) presided.

Labour costs for the 16 weeks were 3572L 3s. 8d.; merchants' bills, 1474L 10s. 3d.; bankers' charges for the half-year, 25L 15s. 5d.; Illogan parish rates, 47L 1s. 9d.; total costs were 5119L 11s. 1d. On the credit side 95 tons 6<sup>1</sup>/<sub>2</sub> cwt. tin realised 4736L 5s. 2d., less dues, 159L 17s. 6d.—1636L 7s. 8d.; extra carriage of the 15L 3s. 9d. This left a loss on the four months of 467L 19s. 8d., thus making their present position, with a previous credit balance, 400L in debt.

Capt. JOSIAH THOMAS read the report of the agents, which stated the rise over the 174 fathom level on the flat lode is up 180 fathoms. About a month after the last meeting of the adventurers we found the water coming from the upper part of the rise was increasing, and as there was some reason for believing that some levels from South Condurrow old workings were driven somewhere near the rise, and that those workings might possibly be filled with water, we thought it prudent to stop rising for the time so as to avoid any possibility of endangering the safety of the men. We have since been endeavouring to get down into the old workings at South Condurrow in order to ascertain whether they were full of water or otherwise, but have not hitherto been successful. The new shaft is sunk 28 fms. below the surface, and we expect to intersect the flat lode in this shaft in about 7 fathoms further sinking, or in about a month from this date. There will then be 20 fms. to communicate from that point to the top of the rise on the course of the lode. If we find that we can with safety resume the rising, a few weeks will complete this work. Since stopping the rise we have put the boring machine to drive west about 40 fms. above the 174. This end is now 35 fms. west of the rise, and has passed through good tin ground for nearly the whole of that distance. The lode in the present end is worth 25L per fathom. We have sunk 3 fms. below the 174 in order to ascertain the value of the lode below that level. We find that it has not at all declined in value, being worth 50L per fathom. We need scarcely remind the adventurers that we are working the mine under very disadvantageous circumstances, which cannot be altered until the new shaft is holed to the rise, and a skip road fixed therein. We shall pay every attention to this work, so as to complete it as quickly as possible. We may further observe that in addition to the extra cost of working underground the new shaft sinking below the surface has cost in labour and materials at least 500L in the past four months.

Capt. THOMAS: So that you see, gentlemen, that in addition to the very disadvantageous way in which we have been working underground—taking that into account—we have actually even now about paid the costs of the mine, leaving out the sinking of the new shaft from surface, which is dead-work. Besides we have spent some 30L or 40L in trying to get at the old South Condurrow workings.

Whether in the last matter we shall be successful or not, I cannot say. We intend to make a further trial. If we could only ascertain that those workings were not full of water we should resume the rise immediately, and in a very short time should communicate to the shaft. The driving of the level westward 40 fms. above the 174 is a very important point indeed. It proves that the tin we had in the rise is no longer a "pipe," as some people said it was.

(Applause.) We have driven through 36 fms. of very good tin ground. (Applause.) We are rising in the back of that level 15 fms. west of the rise, and in as good a lode as we have had in any part of the mine. (Applause.) Below the 174 the lode has not declined in value, but has improved rather than otherwise. It seems to be getting larger and more valuable. Some people seem to imagine we cannot sink far below that level. I may say we have 120 fms. before we get out of our rights.

An ADVENTURER: What length have you after you get down there?—Captain THOMAS answered that east of the cross-course they had scarcely done anything. To the east they would have the flat lode the entire length of their sett. They had only cut it at the 132 and the 154 in that direction. They thought the best thing to do was to get this shaft down as soon as possible. They could not endanger the safety of the men with the old workings of South Condurrow so near them. They could sink the shaft through without this, but it would take from two to three months longer.

Mr. C. W. CLINTON: I understand there is not much water coming from the rise?—Captain THOMAS: No.

Mr. CLINTON: Does it not tend to the presumption that the water has been drained?—Captain THOMAS: I think so.

Mr. CLINTON: Is there any pressure of water in the new shaft?

Captain THOMAS: No.

Mr. CLINTON: I believe the lode in the rise was to value when you stopped?—Captain THOMAS: Yes; of very fair value. I hope to get to the flat lode in a month. We have only 7 fms. more.

Mr. M. H. WILLIAMS: If so, is it of any use to spend money on

these old workings?—Captain THOMAS: We should save a month or two.

Mr. WILLIAMS: What you are doing is clearing up the shaft?—Captain THOMAS: We have sunk the new shaft—the old shaft had run in—to cut under the stull. We had got down 15 fathoms in a month, and we found the stull was broken, and all the stuff had jammed in the shaft. How far down we do not know. The only thing is to sink the new shaft by the old one.

Mr. WILLIAMS: Can you save a month?—Captain THOMAS: Time is money. After cutting the flat lode we shall have 20 fathoms further to sink.

Mr. WILLIAMS: When you cut the flat lode what will be the effect? Will it drain these workings?—Captain THOMAS: I do not suppose so.

Mr. WILLIAMS: And there is a good lode in sinking?—Captain THOMAS: Yes.

Mr. WILLIAMS: Does it dip east?—Captain THOMAS: I think it is going down with the cross-course.

Mr. WILLIAMS: It is important to see such a fine lode below?—Captain THOMAS: Yes. I do not apprehend we can go on to any great depth without pumping machinery. Suppose we sink 20 fms. we should, no doubt, have water.

Mr. CLINTON, in answer to Captain THOMAS, said the lode in the 154 at East Grenville, where the lode was a good one, would be met with in West Frances.

Mr. WILLIAMS enquired how far was this lode from their boundary?—Captain ROWE: I suppose from 70 to 80 fms. He added that the deeper levels in Wheal Grenville would drain them. Last month they drove 7 fms. They had in Wheal Grenville sett the 165 fm. level, by contract to be driven 100 fms.

Mr. WILLIAMS asked what of the 150 end in Wheal Grenville?—Captain ROWE said the end was not worth very much five or six weeks ago; but it had since improved. The course of tin behind the 150 end was a splendid one.

Mr. WILLIAMS: They have had several rich pipes of tin, have they not?—Captain ROWE: Yes.

Mr. CLINTON: They are 40 fms. from our boundary, where we have a lode of the value of 20L per fathom.

The CHAIRMAN: I regret this time we show a small loss; but I think that has been fully explained by Captain Thomas. That is owing to the capital account. But for that we should have shown a little on the other side. I am rather disappointed that we have been obliged to stop the rise; but it has not been unsatisfactory, for it has enabled us to drive west, and to prove that we have a large extension of tin ground, and not a pipe of tin, as some imagine. I hope by the next time we shall get over the difficulty, that the shaft will be holed, and that we shall be in a fair way of working. (Hear, hear.) During the last eight weeks of the 16 we have returned something like 7 or 8 tons per week. If we continue in the same way during the next account, we shall show a better state of things.

Captain THOMAS said that the water came down from the rise, and with other matters, they would do nothing for three or four weeks. That was the reason of their small returns.

The CHAIRMAN said that since the last meeting they had met together with the lord's agent and the representatives of Wheal Grenville and West Basset, and they had definitely arranged the boundaries by placing posts and lines.

Mr. WILLIAMS: I move that the accounts be adopted. I have come here with very great satisfaction to hear this report to-day, and to hear Captain Thomas' explanation of what he has been doing since the last account, because I thought he left out a part of the chapter that he ought to have introduced—that of the alarm that had followed the last meeting in regard to cutting the water of the old mine. Perhaps the stopping of the rise has really been of benefit to us adventurers, because it has opened up the western ground, and shows us that instead of having a pipe of tin as reported, we have really a mine, and this also enables us to go on driving the ground to a certain depth below the 174. I looked at that assertion of Captain Thomas in regard to the ground below the 174 as one of the most important parts of this discovery, because it is richer in depth, and it appears to make us think that this is something like Dolcoath—not that we have a Dolcoath here, but that the deeper we are going in Dolcoath the deeper it is, and here you are going richer as you go deeper.

Mr. JOHN MAYNE seconded, the resolution was adopted, and the meeting separated.

## THE BALKIS COMPANY.

An extraordinary general meeting of shareholders was held at the City Terminus Hotel, Cannon-street, on Monday,—Colonel G. B. MALLESON, A.S.I. (the Chairman of the company) presiding.

Mr. F. POWER (the acting secretary) read the notice convening the meeting, which stated that the meeting was called for the purpose of confirming the resolutions passed at the extraordinary general meeting of the company held on Friday, 14th August. The minutes of the preceding meeting were read and confirmed.

The CHAIRMAN: Gentlemen, it now becomes my duty to submit to you for confirmation or rejection the resolutions which were passed with but one dissentient voice at the last meeting. I am advised that it is not open to anyone to speak this afternoon except for the acceptance or for the rejection of these resolutions, and I must ask any gentleman who follows me on this point to speak to that question. I beg now to propose the confirmation of the first resolution:—"That it is expedient to transfer or sell the undertaking and property of this company to another company, in consideration of shares in such other company to be distributed amongst the members of this company, and that with a view thereto this company be wound up voluntarily, and that Mr. Frederick Maynard (of Messrs. Frederick Maynard and Co., 14, Queen Victoria-street, and Mr. Allen H. P. Stonham (of Messrs. Monkhouse, Goddard, and Co.), 28 and 29, St. Swithin's-lane, be and they are hereby appointed liquidators for the purpose of such winding-up."

Mr. JOHN WALKER: I shall have great pleasure in seconding that resolution.

The resolution was put and carried unanimously.

The CHAIRMAN: I will now propose the confirmation of the second resolution:—"That the conditional agreement submitted to this meeting be and the same is hereby approved, and that the liquidators be and they are hereby authorised and directed, pursuant to section 161 of the Companies Act, 1862, to adopt on behalf of this company the said agreement, and to carry the same into effect."

Mr. JOHN S. BARTON seconded the proposition.

Mr. DALE (the solicitor) read the terms of the agreement referred to in the resolution.

The CHAIRMAN: Gentlemen, the proposal to confirm this resolution has been made by myself, and seconded by Mr. Barton. I will now ask all who are in favour of it to hold up their hands.

Mr. MEARS: I want to speak—

The CHAIRMAN: Is it in reference to this resolution?—Mr. MEARS: I want to move an amendment.

The CHAIRMAN: You cannot do that.

A SHAREHOLDER: He can propose the rejection, I suppose.

The CHAIRMAN: Yes; he can move the rejection of the proposition. Perhaps Mr. Mears is not aware that the first resolution has been carried.

A SHAREHOLDER: It seems to me that the contract should have been printed and circulated amongst the shareholders.

The CHAIRMAN: It was read to the meeting on the last occasion.

Mr. MEARS: I am quite in favour of this meeting confirming the reorganisation of the company, but with the distinct understanding that Colonel McMurdo and the late Chairman and directors of the Balkis Company be held liable for any shares issued in payment of lands that have not been legally transferred to them, and that no shares of the new company be issued in exchange for debentures until legal transfers have been duly registered in their names by the registration of deeds in the Transvaal. That was what I wanted to move as an amendment. (Hear, hear.)

The CHAIRMAN: The resolution to which that amendment refers has already been passed. ("No, no.")

Mr. MEARS: I have an answer to the last circular issued by the board, which I will read if you think fit. ("No," and laughter.)

The CHAIRMAN: I am legally informed by my learned friend on my right that this resolution must be confirmed or rejected. There is no middle course.

Mr. SPOONER: I should like to ask a question. You said at the last meeting that Mr. Hollard had 6000L in hand. If you cannot recover that amount will the board be responsible?—The CHAIRMAN: The board will be responsible for everything that has been done illegally. The matter will be in the hands of the liquidators, who I am quite sure will do their duty, whether to members of the board or to other gentlemen. (Cheers.)

Mr. SPOONER: I take it that the money was deposited to obtain the Graskop property.

The CHAIRMAN: It is no use talking on false premises. I will correct you on that point. Mr. Hollard was the legal adviser of the company in the Graskop matter, and we paid the money to him as agent of the company to pay out the diggers who were on the property.

Mr. SPOONER: Have you settled about the Graskop property altogether?—The CHAIRMAN: That particular part of the property upon which the diggers were who were to be paid the 6000L is not in our possession, the other parts are.

Mr. MEARS: We can be turned out to-morrow. (Cries of "Order.")

The CHAIRMAN: We shall be able to get possession.

Mr. CRANE: After the debts and liabilities of the old company are paid what working capital shall we have? —Mr. SHERIDAN: I rise to a point of order. We have to confirm or reject this agreement. I have several questions to put, but let us do our business in proper order. (Hear, hear.)

The CHAIRMAN: I am not able to answer the question at this moment. All the liabilities will be fairly tested by the liquidators, and what are not proper liabilities will be rejected. The liquidators are honourable gentlemen, and to-morrow morning it will be my pleasure to place the whole of the documents belonging to the company in the hands of those liquidators. (Hear, hear.)

Mr. GARY: Have the liquidators satisfied themselves that the properties they are asked to take over from the old company are properly in the possession of the old company before they take them over? Does the agreement give them power so to do? and does it make it incumbent on them so to do?—The CHAIRMAN: Perhaps you will sit down having asked the questions. (Laughter.) The liquidators have not entered on their duties at the present moment. They will enter into them to-morrow morning, and I am quite sure, being the gentlemen they are, they will do all that is quite proper and correct. I cannot answer the question any more fully.

The resolution was then put and adopted, only four shareholders dissenting.

The CHAIRMAN: Now that the business of the meeting is over I shall be happy to answer any question that may be put.

Dr. BISHOP said when, a few weeks ago, he was asked to be a director, he had not the slightest idea of being anything more than an ordinary shareholder in the company; but the current of events seemed for the moment almost irresistible, and he had felt compelled to comply with the request of several gentlemen, for whom he had the highest respect, that he should take some part in the future management of this company. He had no wish to do so, and at this moment he would gladly recede from the position he had agreed to take up, if he did not firmly believe that there was an excellent future for gold miners in South Africa, even though at the commencement they might be doomed to suffer grievous disappointments.

He believed that those shareholders who stuck to the ship would be rewarded; and he believed this not only of the Balkia, but of the Liebon Berlyn, the Graskop, and other Transvaal companies. With prudence and discretion in the management, he believed that the results would ultimately be satisfactory to the shareholders. (Hear, hear.)

He had been put upon his mettle a little within the last few days by people referring to the company as a "magnificent swindle," a "simple swindle," and an "undoubted swindle," and he had said to himself, "Surely it requires serious consideration to become connected with what honourable men call a swindle;" but he had come to this resolution—that he would not recede. Having taken what he considered the wise step of reducing their capital, perhaps a little too much, it was for them now to sit down and calculate calmly how things were to be carried out. (Hear, hear.) It had been asserted in some of the literature—that had been far too abundant on both sides probably—that those gentlemen who had been asked to take the affairs of the company into their hands were nominees of the late board. Though he had great respect for the members

men occupying the position which we did occupy, we were bound to give to it. I thank you most heartily, gentlemen. (Cheers).

Mr. CRANE asked whether the directors had satisfied themselves that the new company would start with sufficient working capital?

The CHAIRMAN: I am very glad to answer that question. It depends on that gentleman and other gentlemen in the room; but if the money is subscribed the capital will be sufficient. (Hear, hear). That is what the committee have stated.

Mr. JEFFERIES said he believed that in Dr. Bishop they had a first-class man, and one who would give his best attention to the affairs of the company; but he did not quite agree with the reconstruction scheme, because he did not believe that after paying off their liabilities they would have sufficient working capital. However, it would be a mistake to raise querulous matters at the last moment. Let the new board have a fair trial, and if the gold were there for goodness sake let the shareholders have it. (Laughter.) He regretted that in their latest circulars the directors had referred to some of the other circulars as vulgar abuse; but he hoped the Chairman would bear him out in saying that he had been actuated by honest intentions, and not in any way by malice. (The CHAIRMAN: Hear, hear.) Indeed, the directors had stated on a former occasion that but for his assistance on two occasions the company would have gone to smash. (Hear, hear.) They had had some hard fighting, but he believed the agitation would have done good. (Hear, hear.) Personally he wished every success to the company, and he trusted that both sides would bury the hatchet. (Cheers.)

Mr. SHERIDAN moved a vote of thanks to the Chairman for his services in the past, and for his conduct of that meeting.

Mr. ADAMS seconded the motion, which was carried, and the meeting then closed.

#### THE CALLAO BIS GOLD MINING COMPANY (LIMITED).

The fifth annual general meeting of the shareholders held at the Cannon-street Hotel, yesterday,

Mr. CHARLES RONALDSON (the Chairman) in the chair.

Mr. J. H. THORNTON (the secretary) read the notice calling the meeting; the report and accounts were taken as read.

The CHAIRMAN said 12 months had elapsed since they last met; he saw present to-day many old faces which were present then, which showed that their interest in the company was as great and strong as ever. They were now met to discuss the past and to arrive at some important conclusion with regard to the future. When they met here last year he led them to suppose that before they again met the directors would be able to present such a report of the results of their labours as would satisfy the shareholders. But they had had great difficulties to contend with. Some time ago the directors congratulated themselves upon the appointment of Mr. Volveider as manager. That appointment seemed at the time to be a very satisfactory and wise one; he was originally recommended by the El Callao Company, and the directors hoped that Mr. Volveider would bring the company to a dividend-paying condition. These expectations had not been realised, and the directors in their report did not hesitate to state that they considered the arrangement and the working of Mr. Volveider on behalf of the company were unsatisfactory. If there was anyone more responsible for that change of management it was himself; for he came to the conclusion some time since that the broken promises and misstatements made by Mr. Volveider necessitated strong measures being adopted at once. It was six months since Mr. W. Bell-Davies went out to report on the mine, and the shareholders might to-day congratulate themselves upon having an honest, straightforward manager, who would not be extravagant, and who would do credit to the company. The shareholders were indebted to Mr. Bell-Davies for the report he had presented. Mr. Bell-Davies went out with the full support of the board, and the arrangement which he made with the El Callao Company was of an important nature. Mr. Bell-Davies recommended the directors should follow two courses, or adopt either one or the other of them, but the one which the directors thought most useful was to accept the original proposition which was submitted to the El Callao Company—that the Callao Bis Company should pay a proportion of the driving of the Panama level in the El Callao Mine up to the Callao Bis boundary. At the time of Mr. Bell-Davies' inspection that level was within 90 fathoms of the Callao Bis boundary. Since the report had been issued the work had progressed well, and they were now 53 fathoms from the boundary of Callao Bis. The past year had been eventful, and also disappointing. It had been eventful in two, if not three respects—the change of managers, and the friendly relations with the El Callao Company. This put the company in a more satisfactory position on the other side, and led the directors to hope that within a reasonable time they would be able to put before the shareholders such evidence as would convince them that they were nearing the time of profits in this company. Mr. Bell-Davies was now present, and would be most happy to answer questions. If in the past the directors had been perfectly satisfied with the value of the property there was certainly no reason whatever to doubt its value now. The shareholders were called together to-day for two objects—first to discuss and approve the report and accounts, and in the next to ask the shareholders to approve the plan of reconstruction of the company. A year ago he said here that the directors would require, to carry on the company, to issue 12,000*l.* or 15,000*l.* That sum the directors had not received. The total amount of debentures issued amounted to 9200*l.* Some time since, when the directors saw it was necessary that further capital should be provided, they thought it advisable to take into consultation the largest shareholders of the company, to see by what means they could raise sufficient capital without calling upon the shareholders. That meeting took place, and the amount which the directors stated they would require was 6000*l.* Finding the shareholders were not disposed to take up their proportion of debentures, it became the duty of the directors to take steps promptly to put this company in a sound position. There were nearly 4000 shareholders, and it was right and proper that every shareholder should bear his burden and his portion of the expenses, and then all would share in the profits. The directors lost no time in protecting the property, and putting before the shareholders plans by which it was absolutely necessary that every shareholder should bear his proportion of the expense. Therefore he should, at the extraordinary general meeting, move a resolution by which it was proposed to issue shares of 1*l.* each, with 15*s.* per share credited as paid. The directors had taken all the circumstances of the case into consideration, and they thought the amount thus proposed to be raised would be sufficient to put the company into a sound and solid position. There was no intention of calling up the whole of the outstanding 5*s.* per share, as it would not be required. He believed that the moment this scheme was carried out the shares would be more valuable than they were to-day. It was no use making arrangements to-day which would merely carry on the company for a few months, but they must have sufficient to ensure making the company a success. The accounts presented to-day were made up to 30th June in London, and to the 30th April at the mine. It was impossible to have the accounts at the mine brought down to the same date as in London. So far as he could gather or learn of the expenditure on the other side, they had no liabilities there as far as he knew. It was difficult to control the expenditure on the other side. The arrangements now existing were of a more moderate character than they had been for some little time past, and the expenditure on the shaft had been stopped, in order to await the nearer approach of the El Callao level to the Callao Bis border. He moved the adoption of the report and accounts.—Mr. JAMES COCKBURN seconded the motion.

Mr. GUSTAV HIRSCHFIELD asked what were the present expenses per month?—The CHAIRMAN said that up to a recent period the expenses had been 800*l.* per month; they were now reduced to 400*l.* or 500*l.* per month—nearer the former sum than the latter.

Mr. BLADON suggested that the shareholders would like to hear a few words from Mr. Bell-Davies.

Mr. W. BELL-DAVIES said he had explained the position of the property in the report which he had handed to the directors; but technical reports were not always understood by all the shareholders, and, therefore, he would state in two or three words exactly how the

company, in his opinion, was placed. Everybody was aware that the El Callao Company—the adjacent company—had been the most successful gold mine owned by a public company which the world had ever seen, and which had produced large returns to the shareholders; and since he left the country it had again struck rich in depth. That mine when he was there was worked to within 90 fathoms of the Callao Bis boundary, and the direction in which the lode was going down was pointing directly towards this company's property, and he took it that this company was started with the view of finding that lode. But unfortunately the Callao Bis property was covered deeply with decomposed matter, so they could not see the bed-rocks, or follow the lodes at the surface. The El Callao Company had proved the lodes 600 ft. in depth, and all the work done underground on their property was *bona fide* discovery, and pointed to ultimate success with respect to the Callao Bis Company. If they worked at the surface the probability was that they would sink the shaft a little too much on one side or the other of the lode, and he, therefore, suggested that the tunnel should be driven from the El Callao Company. They were now driving with rock-drills, but the El Callao proposed stopping that tunnel, as they wanted to develop another part of the mine. He saw the Chairman and board of directors of the El Callao, who met him with the greatest courtesy, and did all they could to meet his views in any reasonable way. He suggested that the Callao Bis Company should join the El Callao Company in driving the tunnel. This was agreed to, and it was decided to drive the tunnel in three stages, for each of which this company would pay a proportionate amount of the expense. When this had been done the manager would know exactly where to put down the prospecting shaft, which would not cost much, and then they must have sufficient funds to carry on the works. The cost of doing this work would amount to a few thousands, but the present scheme provided for a reasonable amount of working capital. He was confident the lode was there. He fully approved of the cautious course now recommended by the board.

Mr. BLADON asked who got the benefit of the gold produced in driving?—Mr. W. BELL-DAVIES said that the El Callao Company got the benefit of that.

The CHAIRMAN said he might mention that the first of the three sections of the tunnel was now completed.

Mr. BLADON said he wished the meeting to clearly understand that only a small sum was necessary to prove where the El Callao lode entered the Callao Bis property, and assuming it did enter, then began the real work, and the necessity for the expenditure. It had been shown that nothing but a compulsory scheme for raising the money would answer. This company must not make the fundamental error which had been made by some other companies—namely, to credit the shares with more paid upon them than there ought to be, and thus not leave a sufficient amount available to be called up for the purpose of efficiently working the company. There was no doubt the company possessed a very valuable property, but it could not be developed unless the shareholders provided the directors with the necessary funds. He believed that the 40,000*l.* which it was now proposed to give the directors the right of calling would be the foundation of a great success in future.

Mr. HENDERSON could not well understand why 42,000*l.* was required now, when it was stated some time ago that only 6000*l.* would be required. He believed that a larger amount than 15*s.* per share should be credited, otherwise many shareholders would not be inclined to take shares with a liability of 5*s.* per share. He suggested that the amount credited as paid up should be 17*s.* 6*d.* or 18*s.* per share.

Mr. H. KASNER did not think that 42,000*l.* was required at present. If the lode was found there would be no difficulty in raising the necessary money.

Mr. BOVELL asked whether it was a fact that a petition had been filed to wind-up the company?

The CHAIRMAN said the statement was incorrect. No petition had been filed. As regarded the debentures the interest upon them would be paid in cash.

Mr. BOVELL expressed his dissatisfaction with the report and accounts, and said he should move their rejection. He considered that the directors had not conducted the affairs of the company in a way which tended to increase the confidence of the shareholders. M. Bovell said he should move the rejection of the report and accounts.

The CHAIRMAN, in reply to the above and other questions, said he wished to correct a misapprehension into which Mr. Henderson seemed to have fallen. What he stated at the meeting of large shareholders was that 6000*l.* would be required to bring the Panama lode up to the El Callao boundary, and then, if the lode were cut, further capital would, of course, be necessary to bring it to a paying condition. The moment it was known that this company had an uncalled capital of 40,000*l.* it would very much strengthen the position of the company, and, as he had stated, there would simply be a call of 1*s.* per share on application, and 1*s.* per share on allotment. The meeting of large shareholders had given this scheme their unanimous support, and the directors had found amongst all the large shareholders a willingness to support this plan.

Mr. HENDERSON asked whether the consent of the debenture-holders had been obtained to the exchange of the debentures for shares?—The CHAIRMAN said that at a meeting of about two-thirds of the debenture-holders there had been but few objections, and he believed that there would be no difficulty in dealing with the debenture-holders.

Mr. BLADON said that the debenture-holders, who were shareholders as well, had felt it was right to combine in order to see the scheme carried through.

The resolution for the adoption of the report and accounts was then put and carried.

The retiring directors, Mr. Charles Ronaldson and Doctor Horatio Nelson, were then re-elected.

Mr. W. H. Elliott was reappointed auditor.

The shareholders then resolved themselves into an extraordinary meeting.

The CHAIRMAN briefly pointed out that it was proposed to dissolve the old company, and start a new company with a capital of 200,000 shares of 1*l.* each, which would be apportioned as follows:—9200 of the preference shares of 1*l.* each to be issued as fully paid up in exchange for the surrender of the first mortgage debentures; 9200 of the ordinary shares of 1*l.* each to be issued as fully paid, by way of bonus, to the holders of the first mortgage debentures, on the exchange of said debentures for preference shares; 169,926 ordinary shares of 1*l.* each to be issued in exchange for shares in the present company—share for share—such ordinary shares to be credited with 15*s.* paid upon each; 800 preference shares, to be held by the company in reserve; 10,874 ordinary shares, to be held by the company in reserve. He mentioned that the directors had received proxies representing about 25 shares in favour of the proposal. He moved the following resolution:—"That it has been proved to the satisfaction of this meeting, that the company cannot by reason of its liabilities continue its business, and it is advisable to wind-up the same, and accordingly that the company be wound-up voluntarily, and that Mr. Charles Ronaldson, the Chairman of the company, and James Henry Thornton, the present secretary of the company, be appointed liquidators."

Mr. ALF. RUMBALL seconded the motion.

Mr. BLADON suggested that the resolution should be divided into two parts, and there should be added to the second part, commencing with the words "that Charles Ronaldson," &c., a promise that the remuneration of the liquidators should be 150*l.*, two-thirds of which should go to Mr. Thornton, who would probably have to bear the major portion of the work.

This was agreed to, and the resolution in that form was put and carried.

The CHAIRMAN said that, as regarded the petition, to which allusion had been made, no petition had been presented, but for the protection of the interests of the shareholders it was intended to put the voluntary liquidation under the supervision of the Court of Chancery. He moved a resolution authorising this course to be taken.—Mr. ROBERTSON seconded the motion, which was put and carried.

On the motion of Mr. MACKAY, seconded by a SHAREHOLDER, a resolution was then passed, with the full consent of the directors, to the effect that the Memorandum of Association and Articles be submitted to four gentlemen, with power to revise the same, especially with regard to the appointment of directors. The following gentlemen were requested to consult together on the matter:—Mr. Charles Ronaldson, Mr. Alfred Rumball, Mr. Mackay, and Mr. Chapman.

The CHAIRMAN next moved the following resolution:—"That the liquidators be, and they are hereby authorised to sell the whole of the business and property of the company to a new company, intended to be forthwith incorporated under the provisions of the Companies Acts, 1882 to 1883, as a company limited by shares, under the name of the Callao Bis Company (Limited), or such other name as may hereafter be agreed upon, with a Memorandum and Articles of Association which have already been prepared, with the privy and approval of the directors of this company, and that the draft agreement now submitted to this meeting, and expressed to be made between this company of the one part and the Callao Bis Company (Limited), of the other part (the provisions whereof are to be deemed and taken to be part of this resolution), be and the same is hereby approved, and that the liquidators be, and they are hereby authorised and directed to enter into such agreement with such new company when incorporated in the terms of the said draft, and to carry the same into effect with such modifications thereof, not being substantial variations therefrom, as may appear to the said liquidators to be advisable."—Mr. MACKAY seconded the motion.

Mr. HENDERSON again raised the point whether it was not desirable to credit the shares with a larger amount paid up, but in the end the resolution proposed by the Chairman was put and carried.

On the motion of Mr. BLADON a vote of thanks was passed to the Chairman and directors and the meeting broke up.

#### CORNWALL MINERAL RAILWAY.

The half-yearly meeting was held at Westminster Palace Hotel, on Saturday, Mr. ROBERT JACKSON, the Chairman, presiding.—The CHAIRMAN, proposing the adoption of the report and accounts, said the position of the company had now become a matter for congratulation. Six years ago a scheme for arranging the company's affairs was filed, and that scheme gave rise to long litigations as to priorities of stocks and other claims; but in the year 1883 many of these points of litigation having been settled, the directors filed a scheme of arrangement which had recently received the sanction of the Courts of Chancery. The great object of the scheme was to relieve the company of the debt that had been constantly accruing for arrears of interests. Under the scheme the charge for interest on debentures, debenture stocks, and rent charge stock, which had amounted to 19,186*l.* 2*s.* 9*d.* annually had been reduced to 18,541*l.* 6*s.*, which included a small amount of 13*s.* payable to certain parties holding 21,900*l.* of the first issue of 5 per cent. debenture stock who had not yet assented to the scheme, but who, it was hoped, would soon come in. The interest now payable was less instead of more than the annual payment receivable from the Great Western Railway Company. The interest on the preference stock had also been reduced from 26,250*l.* to 22,400*l.* Besides this the scheme had enabled the company to satisfy all claims of judgment creditors by the issue of the finance stock, and to arrange with the Cornwall Junction Railway in a similar way. This has only been accomplished by nearly all parties having made concessions. The company had now no debt and no liability on which interest was accruing, and the board were free to devote their attention to the development of the traffic so as to secure some dividend on the stocks that come after the debenture stock. The interest on the debenture stocks would in future be paid on the 1st October and 1st March. Though the traffic during the last half-year shows a falling off in common with all other railways, yet the traffic of May, June, and July of this year equalled the traffic of the same months last year within 1*s.* The board looked for a steady increase in the mineral traffic.

Mr. CHAMBERLAIN (deputy-Chairman) seconded the adoption of the report which was carried unanimously without discussion.

#### THE AMERICAN METAL MARKET.

Messrs. MATHEWS and WEBB, ore and bullion brokers, Denver, Colorado, write under date August 19:—There is a strong feeling on all sides that trade in general is on the eve of a material improvement, and all the indications point to a confirmation of that view, even though there is an absence of buoyancy. The most favourable sign is the reduction of the surplus reserve in the New York banks of over \$3,000,000, which reduces it, however, only to \$61,633,475, an amount which exceeds that of any previous season. The clearing houses show a decrease of 17 per cent. from the same time last year which is a trifle better than it appears, on account of there having been but five business days, the Grant obsequies taking Saturday. Dry goods have shown a decided improvement, and the reports from the cotton grain crops are promising to a high degree. This latter fact is very fallaciously supposed to argue a boom in the fall. There is no doubt but that it will add largely to the wealth of the country, but it will evidently make low prices for both articles, and tend to keep down the prices of the many articles into whose use these raw materials enter. And, too, these leading staples are apt to strike the keynote that regulates many others. The treasury deal of putting \$6,000,000 of silver into active circulation has been very successfully carried out, and has brought temporary relief, but cannot prevent the ultimate collision of the two metals, nor the necessity of some fundamental changes. Railroad stocks have shown steady improvement, but Wall-street men and journals complain loudly of the absence of outside capital, and are getting very weary of mutual support. Several large offices confessedly have not paid expenses since January 1st, owing largely to the inter-member nature of the business, which in place of paying 1*s.* per cent. pays a quarter of that amount only. We mention this because it is a good barometer of trade, and the question as to whether merchants throughout the country are making money or not.

COPPER still presents a very interesting commercial tag-of-war, and the situation is briefly this—Calumet and Hecla still have a large export contract to fill, and are by no means pressed with any surplus. The large brass companies have only three to four weeks supply bought; and are now growing anxious to make fresh contracts. Calumet and Hecla appreciate this fact, and are playing the coy and indifferent role in order to lead on the consumers. The smaller mines dare do nothing until the Calumet and Hecla show their hand. The dealers are very anxious to make a low pool price, so that a subsequent rise may show them a profit. The outside makers are watching developments eagerly, because the Lake price regulates their price, and so the net result is that all hands are resting until the show begins. Meanwhile, Lake has been slowly pounded down to \$11.15 and 11*s.* at New York under very light sales, while Electrolytic, Anchor, Balto, and Orford, with 400,000 lbs. sold, have shaded prices down from 11*s.* to 10*s.*, according to quality, delivery, &c. The English prices have been very steady, with selected at 48*s.* 10*s.* and Chili bars ranging between the extremely close limits of 43*s.* 5*s.* and 43*s.* 10*s.* The latest London circulars show that England has taken 15,000 tons of fine copper from us January to August, 1885, or at double the rate of last year, and nearly quintupled that of the year before.

LEAD pursues the even tenor of its way, and a very high tenor it is too—for prices gradually harden, and show a probability of even higher rates. There seems to be a see-saw. First the West bay frightened and jump in to buy, which in turn raises limits, and causes the West to go in again, and each wave lands the price a little higher up. At New York some 800 tons have been sold at \$1.25, and even \$4.30, while at St. Louis and Chicago \$4.12*s.* and \$4.15 have been paid for well nigh 2000 tons. Supplies have never been known to be short, and the expectations of sellers are no whit below \$4.50 at New York, for the busy months of the fall, when the demand outstrips all other seasons nearly two to one. The holders of round lots are so completely satisfied with the strength of their position that here is no where along the line the slightest tendency to any weakness or concession.

## A SIBERIAN GOLD FIELD.

The *Sibir*, a Siberian semi-official paper, gives some interesting particulars of the community which has lately sprung up on the south of the Amoor, in the district where gold has been found in such abundance that the name Asiatic California has been given to it. The place is practically an almost inaccessible desert, without roads or paths; it is well beyond the Russian frontiers, and it would seem that until the middle of last winter the Chinese were quite ignorant that a gold mine had been found on their territory. The diggers, who are largely composed of American and Australian miners and recruits from the diamond fields, soon found the necessity of establishing order, and they have constituted a sort of democratic republic. The gold field is at present divided into 22 small districts, over each of which two elected chiefs preside, a judge and an overseer, whose duty it is to compose all differences which may arise amongst the diggers, and to inflict moderate punishments for any offences. A general President controls the body of judges and overseer; he is chosen by general suffrage from amongst the diggers, and he is charged with the task of conducting any business which may arise with the Russian or Chinese administrations of the Amoor districts. The decision of all matters of grave importance is reserved to a general assembly of all the diggers; and this assembly is empowered to expel anyone from the mines, to depose the President, and to inflict capital punishment. The President has a salary of 400 roubles a month, or about 56*l.*; the overseers and judges have salaries of half this amount. A direct tax on all places of amusement and liquor saloons constitutes the fiscal income of the community. There are about 150 such places in the district, and the receipts of each vary from 200 to 400 roubles a day. Each place pays a monthly tax of 25 roubles. A Russian official has been stationed by the authorities of Eastern Siberia in the district, and he has purchased a large quantity of the gold obtained by the diggers at the rate of 3*40* roubles the solotnik (equal to 4*3* grammes), or nearly at the rate of 4*5* the troy pound. The amount purchased to the beginning of summer amounted to 66 pounds, or over 2600 lbs. When the Chinese authorities learnt that a gold mine had been discovered within their borders they took steps to assert their rights, and sent a small detachment of troops. The diggers tried to buy them off, offering first 4 lbs., then 8 lbs. of gold. Then a force of 10,000 men was sent from Manchuria, the intention being to attack the diggers as soon as the ice began to break up on the Amoor, and they could no longer escape by the river into Russian territory. Had they done this there would have been much bloodshed, for the diggers are well armed and very determined, and as discoverers consider they have an absolute property in the diggings. Possibly Russia would have found in the confusion an excuse for intervention in a district which she must greatly regret is not within her own borders.

It is so long since the world has been excited by the rumour of a new gold field where white men could live, that it may possibly decline to be ruffled by the report of a fresh El Dorado on the banks of the Amoor. For 20 or more years vague tales have been reaching California regarding the glittering scales which were to be washed out of the mud of the great Siberian river. But the seekers after fortune had so long been tantalised by similar tales from almost every part of the Pacific, that though a few adventurers visited the region in question the Russian Government were not troubled by anything like a "rush." It would appear, nevertheless, from an account which appears in a semi-official paper, that for several months past a busy community of diggers have been at work in a place so inaccessible that until last winter the Chinese were quite unaware that the "foreign devils" were shovelling up wealth on the borders of their Empire. The miners are largely composed of Australians and Californians, with a few recruits from the South African Diamond Fields, and are already so numerous that they have established a rude sort of Commonwealth for the better government of the 22 districts into which they have divided the territory they have so quietly, and it must be allowed, so coolly annexed from the Chinese Empire. Over each district is an elected judge and overseer, controlled by a President, who conducts any business which the diggers choose to have with the Russian Administration on the other side of the river, or with that of China, which they are by no means prompt to acknowledge. The President is paid 56*l.* per month, and the overseers half that amount, while a direct tax on all places of amusement and liquor saloons constitutes the fiscal income of this rude Republic, which, with the characteristic Anglo-Saxon capacity for self-government, these orderly adventurers have established within the bounds of the Chinese Empire. What places of amusement, except for drinking and playing poker, there can be in so remote a corner of Asia it is hard to imagine. However, we are told that there are 150 such establishment in the districts, and that the receipts of each vary from 200 to 400 roubles a day. Gold seems to be abundant, over 2600 lbs. weight having been purchased last year by a Russian agent, and no doubt this summer has proved equally favourable to the operations. The only trouble is likely to be with the Chinese. When the Mandarins heard that gold had been discovered within the Imperial bounds, they sent a detachment of troops to drive away the new comers. Failing to accomplish this, a force of 10,000 men were to have been advanced against the Commonwealth as soon as the ice has broke up on the river. But as the ice has broken up long ago, and no tidings of bloodshed have reached us, we may conclude either that the news was wildly exaggerated, or that the Chinese have thought better of their resolution.

The story of these secluded gold seekers on the banks of the Amoor, forming a self-governing community out of the lawless elements which usually flock to a "rush," is as romantic as any tale which the annals of gold finding can supply. The most remarkable fact about the business is the comparative secrecy with which they have managed to go about their business. The Amoor is no doubt rather far in the outer world. But a place must be distant and the way dangerous which the determined gold digger will not reach, so long as there is anything like a probability of "pay-dirt" to reward his labours. Hence, should the report to which we have given currency not prove—as there is no reason for suspecting—a figment of the "Sibir," the Amoor Commonwealth may soon receive a large addition to its population. As for the Chinese marching "ten thousand, or any number of men, against the diggers, we may accept this as a threat which will never be carried into effect, though as the diggers, in strict accord with the law prevailing amongst them, consider the territory their own by right of discovery, differences may before long ensue. The mere fact of gold existing in Siberia has of course never been a secret. Indeed, some of the richest auriferous regions in the world exist in that fertile but little known portion of the Russian Empire. The entire eastern slope of the Oursals is gold-bearing; and the other side, right on to the Altai, is quite as rich in the precious metals. At one time Yermakova, on the Yenisei, was a great centre for gold washers. Long before the discovery of the famous placers of California colossal fortunes were made here, and the stories of the hundreds of "pools" which were every year washed out, and the reckless life led by those to whom these prizes fell, still form a favourite topic of conversation in the region. But the diggings have "peppered out," and many of the men who had made fine fortunes in the palmy days have been ruined in their fruitless efforts to obtain more. The wiser of them have removed to St. Petersburg, Paris, Moscow, Omsk, or Krasnojansk, to spend their easily-earned wealth; and the place where, 40 or 50 years ago, the scenes afterwards so familiar in Australia and California were enacted, is as desert as any abandoned mining village on the Pacific slope. A few half-decayed "shanties" on which the young forest is rapidly gaining ground stand here and there on the river bank, and rotting in the coves hard by are the huge flat-bottomed arks, built of logs, which in those busy times were employed for the transport of the necessities of life from Southern Siberia to the mining centres. In this desert there were splendid billiard tables, cooks from Paris, and champagne which flowed like water. Thousands of horses are said to have filled the stables of the hastily-constructed city, while the granaries overflowed with corn and the shops with everything which money could buy. All this has so thoroughly disappeared, that it is hard to believe it ever existed. A few companies

still work the gravels. But they are not spoilt by prosperity, and the mines being provisioned by contract, there is now little room for the French restaurateurs and the wine merchants who sold the wares of Rheims at two guineas the bottle.

Nor have the Siberian Gold Mines done much for the country. The land lies uncultivated, and manufactures cannot be successfully carried on, because, as Mr. Seebom tells us, the peasants and workmen are continually tempted away by advanced wages, and by the opportunities for pocketing gold. At the gold mines they are over-worked, each having an allotted task to perform, which must be completed, no matter how long it takes. Then, after all, many never reach home. Some die by the way, and others are robbed or murdered in the forest, for the sake of the money they have about them. Again, the business is a sore temptation to the men's honesty; for though the Russian Government prohibits the purchase or sale of gold except to public officials, a large trade in the precious metal, principally in that which has been stolen, is carried on; and considerable quantities find their way to China or are bought by the Kirghis. Altogether, the pursuit is not less demoralising in Siberia than it has proved to be in any other part of the world. California and Australia have benefited by their gold mines only in so far that they brought immigrants who, by tilling the soil, or grazing the surface with their flocks, and in other ways developing the resources of these regions, secured their permanent prosperity. The amount of gold washed out of their placers, and even that crushed out of their quartz ledges, would, were a balance-sheet struck, prove small in comparison with the money, labour, time, provisions, and clothing expended or consumed by those who did or did not obtain it. But there is no use preaching this doctrine to men averse with the tales of easily snatched wealth. From Jason, who was a digger in the Caucasus, to the latest adventurer on the Amoor, each man expects to be the lucky one. It is equally vain for any individual or any Government to try and stem the coming tide of gold seekers. When Marshall first found the scales in Captain Sutter's mill race, his employer was in doubt whether it would be wise to say anything about it. The Governor of New South Wales kept concealed as long as he could the fact that shepherds had been picking up nuggets on the "runs," and, though gold had been discovered on the Fraser river prior to the great "rush" in 1858, Governor Douglas discreetly abstained from mentioning the circumstance, lest the Fur Company, of which he was the head, should suffer by the disorganisation of business certain to ensue. Such prudence sufficed, however, for a brief period only. And the Chinese Mandarins had better make up their minds to let the "foreign devils" do their best; for unquestionably, if they are getting gold by the pound, or the ounce, or even by the pennyweight, they will have their way, be the Cousin of the Moon pleased or the contrary. Their grubbing among the Amoor gravels may not in the end do much for the country. But it may attract the attention of farmers and manufacturers to this wide region.—*Standard.*

## THE MINING ASSOCIATION AND INSTITUTE OF CORNWALL.

## ANNUAL EXCURSION.

Amalgamated several months since, these societies had their first annual excursion on Tuesday last. The outing was a perfect success, although there was not nearly as much talk of "balling" matters as has previously attached to the event of the year of the Mining Institute. Happily the day proved fine. Only twice were there threats of rain. This year the number of eager excursionists was larger than ever known in the history of either society. The rendezvous was the seat of the noble President, Lord Robartes. Travelling by the first train, some 70 ladies and gentlemen alighted at Lostwithiel, and, in five carriages specially provided from Bodmin, first proceeded to inspect Restormel Castle. This is a castle with a history, but just now it is a castle in name only. It is supposed to have been built at the end of the 11th century, and, since then, for centuries, to have been the property of the Dukes of Cornwall. Mr. R. H. Williams, C.E., of Wheal Eliza, gave a short history of the place, and the fact that particularly interested us in his recital was this:—That Lostwithiel, within a few hundred yards of the castle, in the old days, was the only town permitted to trade in tin, and that it was found at one time that Bodmin and Truro illicitly followed the practice; that there was an appeal to Parliament. But Mr. Williams could not, unfortunately, tell the result of this appeal. From Restormel a departure was made for the Stockwork Mine which rejoices in the name of Mulberry. This is situated in Lanivet. The conditions under which this mine is worked greatly surprised the visitors. Here there were no shafts. The ground was entirely bodily removed, and the result was a vast, yawning hole. Hence a move was made for Lanhydrock, via Bodmin. Arrived at Lord Falmouth's estate, the excursionists were heartily welcomed by both his lordship and her ladyship. A most excellent luncheon was provided, and among those present we noticed Lord and Lady Robartes; Mr. A. Pendavies Vivian, M.P.; Mr. T. Simon Bolitho, Penzance; Mr. R. J. Frecheville, Her Majesty's Inspector of Mines; Captain and Mrs. Josiah Thomas, Dolcoath; the Rev. J. Every, Vicar of Lanhydrock; Dr. H. Harris, Redruth; Messrs. W. Teague, Treliiske; F. W. Michell, Redruth; Charles Tyack; J. H. Bawden; John Hoskins, W. Hambley, late Wheal Uny; R. H. Williams, C.E., Wheal Eliza; W. T. White, Wheal Agar; T. Pryor, purser, Wheal Peverar and West Seton; W. Tregay; W. M. Grylls, Falmouth; N. Trestrel, jun.; R. S. Teague, purser, of Pen-an-drea; S. Davey; Charles Bishop, East Pool; John Penhale, East Pool; G. T. Richards, Duchy Agent; W. Huthnance, Gwinear; S. Bennetts, Blue Hills; J. Hitchens, St. Agnes; T. Hutchinson; C. Craze; South Frances; W. Pascoe, South Crofty; A. Lanyon, Redruth; Pearce Jenkin; J. W. Wilkinson, Kennall Vale Gunpowder Company; W. Teague, jun., Tincroft and Carn Brea; J. Nicholas, West Basset; Cornelius Bawden; W. Lidgey; J. W. Towan, Carharrack; W. C. Tyack; J. J. Beringer, county analyst; W. Rich, South Conduffrow; W. Rich, jun., secretary; M. Loam Liskeard; C. Thomas, Cook's Kitchen; F. Thomas, Dolcoath; J. Wickett; T. Quenall, East Lovell; H. King, South Conduffrow; H. G. Halse, TrevARTH; F. W. Dabb; R. Symons; and N. Bryant, St. Agnes.

After an excellent luncheon, the loyal toasts were given. To the toast of "The Army, Navy, and Reserve Forces," Lieut.-Col. VIVIAN, M.P., responded, speaking highly of the last-named service. Captain TEAGUE, sen., who proposed "The Two Houses of Parliament," remarked that certain wild people would like to separate the two institutions, but in Mr. Vivian they had a gentleman who would maintain the integrity of those institutions. The name of Lord Robartes was a household one throughout the county. (Applause.) Lord ROBARTES, in reply, thought they might do well to enquire as to the condition of the two Houses. The House of Lords had little work to do; the House of Commons had a great deal, and if something could be done whereby the work could be equalised he felt it would be a very good thing. (Applause.)

Mr. PENDARVES VIVIAN, M.P., having said they had tried to do as much as they could in the last five years, but that he thought even less would be done with the class of men they were to have in the new Parliament, went on to say that there were many things which required legislation, and in that category was the question of mine leases. He said: I do not wish to go into the matter at any length, but I cannot help feeling that in forming legislation—mining legislation—in the future something of the same course should be adopted as in the past; that a county meeting of the mining community should settle on what is required—should settle on what should be done. I see this has answered very well in the past to get representative from different sections of the mining community to sketch out what is required for their benefit. I cannot help thinking there is no reason whatever to depart from that old rule. (Applause.) As regards myself, you know my own views upon mining leases pretty well. You must bear in mind that we must regard the rights of everybody concerned—(applause)—that we must do injustice to nobody. It is for us to consider what would be a just and fair measure, and to endeavour to get the House of Commons to endorse it, and to take it into their favourable consideration. (Applause.) If the House of Commons once imagined that a measure is unfair or unjust—I do not care what the measure is, who has charge of the Bill—

then it is of no more value than the paper upon which it is written. I think the principle sanctioned by Parliament in the Agricultural Holdings Act, and in the Irish Land Act, is the right principle for us to adopt if we can possibly do so. I mean the principle of compensation for unexhausted improvements. I refer to the question of mine leases. By adopting this principle at the termination of a lease we should be doing no injustice to anyone, and I believe the principle will commend itself to the House of Commons. (Hear, hear.) I remember some 16 years ago, when considering the matter of legislation on the Stannaries Act, at county meetings, we took into consideration a question which affected the miner. We were anxious to secure to the miner, in the event of the stopping of the mine, the whole wages due to him. In consequence of the feelings of the House of Commons then we were only able to secure the wages of the first three months, and we were asked to wait until the liquidators should finish the affairs of the mine. I think it is right to secure to the working miner the whole wages due. I know perfectly well, from having been brought in contact with miners for the past 30 years, that it is of the utmost importance to the working miner that he should feel that the wages he was earning were secured to him and his family, and I am perfectly certain no gentleman would wish to do otherwise. I hope much the time will come when a county meeting may be called together, and sketch out the requirements of the mining community, and that we may—whoever has the honour of doing so—be able to convince the House of Commons that the proposals are just and fair, and are what are required by the mining community. (Hear, hear.) I consider it a great honour to belong to the House of Commons, and so long as I have that honour I shall do my best to represent any constituency I may sit for in a proper manner. (Applause.)

Capt. JOSIAH THOMAS proposed "Success to the Mining Association and Institute of Cornwall, coupled with the health of our most worthy and noble President, Lord Robartes." (Applause.) He hoped they had all enjoyed themselves that day. Having expressed his surprise that the Mulberry Mine, which they had visited, could return a profit on low-produce stuff of some 5 or 6 lbs. of tin to the ton, and remarked that some clever members of the company had suggested politics in the Mining Division would send some of them to the County Asylum, for breaches of the Corrupt Practices Act, others to the County Gaol, both of which institutions were passed, Capt. Thomas said:—As to the Mining Association and Institute, I may say the Mining Association is put first because, I suppose, it was the first institution established. I well remember when that Association came into existence, and I do not think the promoters of it acted in the most prudent way, to say the least of it, they commenced by severely criticising the mine agents, saying they were a most ignorant set of men. (Laughter.) My father and others did not like to be told by persons and doctors that they were ignorant, and thus agents who might be of use to the Association refrained from joining. This Association, however, went on and prospered, and I believe it has done a great deal of good to the people. I only wish I had the advantages offered me which this Association has offered. I hope the young men will add practice to theory—add to their stock of information. (Applause.) The Mining Institute was formed some seven or eight years since, for the purpose of friendly intercourse between mine agents. I believe it has been the means of doing a vast amount of good. There was a time in Cornwall when the agents did not know each other so well as now. They might know the machinery, but since this Institute has been established they have met together more frequently, and in consequence mining machinery has improved. I do not think I should be far wrong in saying that mines can now be worked at a depth of 400 fathoms as cheaply as at 200 fathoms 25 years ago. (Hear, hear.) The two associations have lately been amalgamated, and I see no reason why they may not work together most harmoniously, and why they should not be more beneficial than when separated. Of Lord Robartes I can only say that if all the lords had acted in the same liberal manner as the present lord, and his late respected father I—say if we had asked as they have acted—not one word would have been said from one end of the county to the other of any legislation being necessary in mining matters. (Applause.) I do not say this in the presence of Lord Robartes; I have said it many months since. (Applause.)

Lord ROBARTES: I thank you very much for the cordial way in which you have drunk my health. I can assure you it has given me very great pleasure to see you here to-day, more especially in the honourable position in which you have placed me with regard to your Association. I was only sorry last winter I was prevented from attending your meeting, but I hope to have another opportunity of doing so. (Cheers.) I do not propose to speak to you at length on mining matters, personally I have slight acquaintance with them. Had time permitted I should have been glad to have heard remarks from those well qualified to speak on such subjects. I wish that the interest of mining throughout Cornwall could be said to be more a cause of congratulation than it is now. I believe here and there there is not wanting evidences of a better state of things. I think a better condition of affairs will come. (Hear, hear.) I feel sure that associations of this kind do good, and the amalgamation of these two associations tends to cement the good feeling which exists between the members. I am personally glad it has fallen to our share this year to have the opportunity of entertaining the members here. (Hear, hear.)

Captain TEAGUE, sen.: I was much delighted with the remarks made by Mr. Vivian with regard to future legislation for mine leases. For his guidance I may go so far as this—that there is a sketch already drawn, and was awaiting the sanction of this meeting before it was put into circulation. Continuing, Captain Teague said he hoped a great deal of good would come out of the movement. They would "let dead dogs die," and, therefore, the least said about the Stannaries Act and the Metaliferous Mines Act the better. These Acts had not been carried out as they should have been. There was a good deal said about the protection of the working miner. He challenged contradiction when he said there was not a mine agent in that room who would allow a miner in his employ to be trampled upon or unfairly dealt with. Whatever might be the tendency of certain classes they must take care of the working miner. How were they to care for him? They could only care for him by seeing that at the end of the four weeks he received his money. We do not fly away to the lord, or anybody else, we look to the adventurers to find the money, and if they are not prepared woe to the working miner. They were prepared for a county meeting. They insist, as miners, legislation was necessary. Now, we want to know how to get about it, and to fix on a certain principle which should be embodied in a Bill, and brought before the House of Commons, and not be rejected. (Applause.) They had been reminded by Mr. Vivian that the Bill must not be drawn in a one-sided way. The miners did not wish this. They only wanted that which was fair and equitable among all parties. (Applause.)

Mr. VIVIAN, M.P., gave the toast of "The Ladies," to which Mr. FRECHEVILLE happily replied.

Captain RICH referred to the Chairman as one of God's own noblemen, and the name of Robartes would be honoured so long as a Cornishman lived. He was one of few landlords who could take the position of their President. (Applause.)

Mr. T. S. BOLITHO (Penzance), who entered late and was loudly cheered, said he had an interest in everything in the mining way. Born in the same year as his lordship's father, he could say he had known Lord Robartes from his earliest years. He entertained the greatest respect for the memory of the late lord, and for his liberal acts. Look at the Miners' Hospital at Redruth. (Applause.) That was a very great work, and did him honour. A more liberal landlord than the present lord was not to be found. He was pleased to see there his friend, Mr. Vivian. (Applause.) There might be differences of opinion among them, but he did hope—he sincerely trusted—that the cause of Liberalism was not to suffer because of any little difference of opinion that may have arisen. He hoped all would strive to put an end to the feeling that unhappily existed, and that North-Western Cornwall would continue to send a Liberal to the House of Commons. (Applause.)

Lord ROBARTES having said a few words, the company separated, and upon departing, soon after, gave hearty cheers for Lord and Lady Robartes, and family.

## Mining Correspondence.

## BRITISH MINES.

**BEDFORD UNITED.**—H. Trezise, September 1: There is no change to notice in the mine since last week's report. The water is now in fork, and we have resumed the drive at the 90. The late showers have given us sufficient water to keep the wheel going. We have sampled 79 tons of good ore.

**CARN CAMBORNE.**—W. C. Vivian, September 3: We continue to open west of the cross-course at the 105 fm. level on the course of the lode, which presents favourable indications for becoming larger, and at the same time productive of ores. We therefore think it better to defer opening north and south in the cross-course in search of other lodes until we have driven a little further west on the one already discovered.

**CREIGIOG.**—H. Hotchkiss, September 2: The lode in the forebreast of the 130. west of shaft, is about 2 ft. wide, and is in character just as reported on last week, with a little water coming from the forebreast near the foot of the driving. There is no change in the character and size of the lode in the rise east of shaft.

**CWMYNTSWITH.**—Joseph B. Rows, September 2: During the past week we have taken down the lode in the side of the 15 fm. level at Pugh's. I am pleased to say that the lode is large, and will produce 10 cwt. of lead and 1½ ton of blonde per fathom. This looks encouraging, therefore, we shall push on again with the clearing of this level to see what is yet before us. It will also at the same time give us some idea what we may expect to meet with over and under this level (15). There is no important change in any of our other underground bargains. The repairs to Pugh's water-wheel have been completed, and the wheel set going again to fork out the water. It is now working very steadily. We have this week commenced to level the ground for laying the incline railroad from the Big Rock to the mouth of the Levelshaw, and shall endeavour to get it to work as soon as possible. For want of sufficient water to drive all of our dressing machinery we have not been able to dress our usual quantity of lead and blonde during the past week.

**D'ERESBY.**—William Sandoe, September 2: I am glad to say that we were able yesterday to resume the sinking of the sump on the hanging at No. 5; there is here a fine lode going down under the shale worth about 2 tons of lead ore to the fathom. We have still a little water in the bottom here to contend with, but I hope to be able to keep it under sufficiently to continue the sinking and stopping. On the heading at new shaft the stopes south are just as reported last week, a good ore lode, and worth about 1 ton of lead per fathom. The stopes north of new shaft having been worked forth north through the richer part of the lode we put the men from here to the sump on the hanging for the present till we sink the new shaft deeper, and then take up a new stope. We shall make ready for sinking in a few days, we have first to change the working barrel which is now on the mine.

**DEVON GREAT CONSOLS.**—I. Richards, Sept. 3: Wheal Maria: During the past month the eastern shaft, on the Capel Tor ledge, has been sunk 1 fm. 4 ft. 6 in., the lode proving 3 ft. wide, composed of capel, quartz, and peach, with small quantities of good quality copper and mundic ore; the lode having taken a greater underlie than formerly, sinking is now being carried on on the south side of the lode. The 12 fm. level, west of the eastern shaft, on the Capel Tor ledge, has been driven 1 fm. 3 ft. 6 in., the lode proving of good size—from 4 to 5 ft. wide—of a strong masterly character, and yielding small quantities of copper and mundic ores. Wheal Emma, Railway Shaft, New South Lode: The 22 fm. level west, on the south part of the lode, has been driven 2 fm. The driving for the greater part of this distance has been carried by the side of the lode for more speediness, and it is intended to continue the driving some feet further, when it will be taken down for proof of its size and character. Samples also will at the same time be carefully taken and assayed to ascertain its value.—Watson's: The 124 fm. level, west of the engine-shaft, has been driven 1 fm., the lode proving 3 ft. wide, of a promising character, and yielding saving work of copper and mundic ores. The 124 fm. level, east of the engine-shaft, has been driven 1 fm. 2 ft. 4 in., the lode proving 3 ft. wide, of a very promising character, and yielding saving work of copper and mundic ores. These two points of operation have further improved, the lode at each point now yielding 2 tons of copper and mundic ores per fathom. The 112 fm. level, east of the engine-shaft, has been driven 1 fm. 2 ft. 9 in., the lode part carried—2 ft. wide—being composed of capel and quartz, with peach, fluor, and a little copper and mundic ores. Trewethaway's rise, in the back of the 112 fm. level, west of the engine-shaft, has been driven 1 fm. 1 ft. 6 in., the lode proving from 2 to 3 ft. wide, and yielding a little saving work of copper and mundic ores. The 44 fm. level, west of the western shaft, has been driven 3 fms. 3 ft. 8 in., the lode proving 1 ft. wide, unproductive. The 44 fm. level, east of the western shaft, has been driven 1 fm., the lode proving 3 ft. wide, of a very promising character, and yielding saving work of copper and mundic ores.

**DRAKEWALLS.**—Thomas Gregory, September 2: The water is nearly in fork again to the 102 fm. level. We hope to resume work in the bottom of the shaft on Monday, if all goes on well.—North Lode: In the 50 fm. level west of cross cut we are breaking some good stone of tin, and we expect more to be near on the lode west of cross cut, the ground being good and highly mineralised. The lode in the 50 fm. level east is improving as we advance; now worth about 9d. per fathom, and speedy for driving. There is no other change to advise you.

**DUCHY PERU.**—R. and J. Nancarrow, September 1: The ground in the 80 fm. on course of lode is rather hard and spare for progress, but the part of the lode carried presents a very promising appearance; here we purpose to shortly cross-cut through it so as to ascertain its character and value. There is not much change in the 70 west, the lode is still hard, but produces good stones of mineral. The tribute department is producing its average quantity of ore, which is of good quality. All surface work is being carried on with the usual energy. The machinery with pump work is working in a satisfactory manner.

**EAST BLUE HILLS.**—S. Bennetts, W. K. Mitchell, September 2: The shaft is being sunk on the north 6 ft. of the lode; this portion only we value, although the southern part where last cut through is the most valuable. The shaft at present is worth 15d. per fathom. The lode in the 20 west end is 6 ft. wide, and worth 12d. per fathom; and in the same level east end it is 5 ft. wide, and worth 30d. per fathom. Both the 10 fm. level and the adit east end are producing low quality tinstone. In a winze sinking below the 10 the lode is worth 12d. per fathom.

**FRONGOCH.**—J. Kitto and Son, August 31: There has been no change in any of our underground workings during the past month, so we have nothing new to report. The two new levels referred to in our last, are still opening out paying ground for lead and blonde, and the tributary pitches now in operation are looking fairly well. The surface water for drawing and dressing purposes have become very short, and we have not been able to work anything like full time on the dressing floors, but we have sold during the month 100 tons of blonde at 3d. per ton, and 30 tons of lead ore at 7d. 1s. 6d., which will rather more than pay the month's cost. Our sales for next month, however, will depend almost entirely upon the water supply.

**GATWON.**—George Rowe, August 31: In the 105 east the lode still maintains its size and character, also turning out some first-class stones of ore, with strong indications of further improvement. The lode in the 95 east is looking very promising, and yielding fully 12 tons of arsenical mundic per fathom. The rise and stops in the back of this level are a little improved during the past week, yielding 9 tons of mundic per fathom. All other points are without change.

**GOODEVERE.**—R. Knott, September 2: The clearing and securing of the shallow adit, as referred to last week, is completed. The deep adit end east continues much the same as last reported. The machinery for ventilating this point of operation is being rendered on the mine, and the timber work is being prepared. We shall use every means to get this into working order, after which I anticipate making better progress in pushing on the deep adit end, which is of the greatest importance for the effectual working of this mine.

**GREAT HOLWAY.**—W. T. Harris, September 3: Roskell's Shaft: The 95 north has been extended 3 fms.; the present character of the rock indicates an early change, and the joint yields occasional stones of blonde and a little lead. Fair progress is being made in driving north ; set to four men at 8d. per fathom.—Level Engine Shaft: The 80 east has been extended 1 fm. 4 ft. 6 in. The lode is 1½ ft. wide, containing a good mixture of lead and blonde, and promising for a great improvement as driven forward, rest to four men at 7d. per fathom.—Tribute: No. 1 pitch in back of this level is worth 8 cwt. lead, and 1 ton blonde per fathom, set to four men, at 10d., and 35s. per ton respectively. No. 2 pitch in back is producing 6 cwt. lead and 1 ton blonde per fathom, set to two men at 10d., and 35s. per ton respectively. The present forebreast in No. 4 pitch in bottom of 80 east is most encouraging for profitable improvements as extended in that direction. The lode is 6 ft. wide, producing 10 cwt. lead and 1½ ton of blonde per fathom, rest to four men at 10d., and 35s. per ton respectively. No. 5 pitch in back west continues to open out in a profitable manner. The lode is 2½ ft. wide, containing 2 tons lead and 1½ ton blonde per fathom, rest to 12 men at 10d., and 35s. per ton respectively. No. 6 pitch in back west is yielding 12 cwt. lead and 1 ton blonde per fathom, and improving. No. 9 pitch in back west is producing 10 cwt. lead and 1½ ton blonde per fathom. No. 10 pitch in back west is worth 2 cwt. lead and 1 ton blonde per fathom. A pitch east is producing 10 cwt. lead and 1 ton blonde per fathom, worked by 16 men at 10d., and 35s. per ton respectively.—Bramstock Shaft: The lode in No. 1 pitch is back of 60 east is 6 ft. wide, worth 1½ ton lead and 1½ ton of blonde per fathom, rest to six men at 10d., and 35s. per ton respectively. No. 2 pitch in back is producing 5 cwt. lead and 1½ ton blonde per fathom, rest to two men at 10d., and 35s. per ton respectively. Machinery in good condition, and working satisfactorily. Dressing and surface work progressing with usual regularity. Have sold 155 tons lead and blonde, which fetched 8512. 0s. 6d.

**GREEN HURTH.**—J. Polglase, August 27: The bottom end is about the same in value as last reported. The vein in the winze in bottom of 44 will be reported next week. All our other bargains are without change.

**GREAT WEST SHEPHERDS.**—R. and J. Nancarrow, September 1: Since our last the usual progress has been made in the both cross-cuts north and south of Brown's shaft at the 10, and we hope in a few weeks to intersect the both lodes and met with good results judging from the improved character of the middle lode recently passed through at the 30, compared with its appearance at the 16. In the 16 east of this shaft we have a beautiful looking lode, and we shall be greatly disappointed if we do not meet with a good discovery in a very short time. We are pushing on the sinking of the new engine shaft with all possible dispatch. All other operations are proceeding in the usual way and the machinery is working well.

**HEALEYFIELD.**—John Trelease, August 28: I am pleased to inform you that our stopes are looking about as usual, and the foremost rise north looks more encouraging, more vein matter putting in, and water filtering freely through the lodes. I welcome this change, and am of the opinion, by present indications, that we will get an early improvement for lead ore at this point. The engineers are progressing very favourably with the erection of new engine. The boiler house is covered in, and the steam pipes approaching completion. I have men busily employed preparing the machinery, &c., for lifting out the pumps, to place in new working barrel. We are doing our utmost to get forward the work, to be in readiness to start the sinking when the engine is ready. We

nished carting the 40 tons parcel of ore this week, and will commence to cart the next 40 tons parcel next week.

**HOLYWELL DISTRICT LEAD.**—R. Rowlands, September 4: The forebreast of the east and west lode in the 110 is well formed; after passing through the recently discovered north and south lode the vein is of a highly mineralised character, and when we are enabled to resume operations in its further extension I have no doubt of meeting with another discovery. We are now engaged in driving north on the north and south joints recently intersected, and the forebreast to day shows splendid lead ore, worth fully 2 tons per fathom, and in ground that can easily worked. We are not at present working upon what I must term the old discovery, but we do so when our present north driving is further advanced, which is also yielding 2 tons of lead ore per fathom. In a few weeks' time I hope to be able to set men to rise in the roof of the 110 west about 30 yards behind the end, where there is a rib of solid silver lead ore. In the 80 east the lode in No. 1 tribute pitch maintains its value (say) 15 to 20 cwt. of lead per fm. The men have drawn to-day from this point a good pile of ore. In No. 2 cross cut we have in the heading side of the lode a good rib of ore that will turn out about 1½ ton of lead per fm. We are not working this point at present, as our efforts at this part of the mine are devoted to rising up on the hanging side of the vein, where we have some rocks of lead weighing over 50 lbs., and the portion of the vein carried at this point looks exceedingly well. From these remarks you will gather that the mine has further improved since my last report.

**MELLANEAR.**—John Gilbert, September 2: The 70 cross cut, north of the main lode, east of Gundry's shaft, is strongly mineralised with veins of mundic and blonde, and the ground is a little better for driving. The lode in the 110, west of Gundry's shaft, is 4 ft. wide, and still yielding 1½ ton of copper ore per fathom, and presenting a very kindly appearance. The lode in the 120 west of shaft is 2 ft. wide, yielding good stones of tin, and some saving work for copper ore. The lode in the 120 east of shaft is 4 ft. wide, yielding 1 ton of copper ore per fathom, and some saving work for mundic and blonde. The part of the lode driving on the 130 east of shaft is 4½ ft. wide, and yielding 2 tons of copper ore per fathom, and some tintuff of very good quality. There is more lode standing in the north side of this level, from which there is coming a very large stream of water. We propose to begin next week to cut through this part to ascertain its value. The rise in the back of this level is yielding 2½ tons of copper ore per fathom. The lode in the 130 west of shaft is 4½ ft. wide, yielding good stones of copper ore, and is also worth 6d. per fm. for tin. The rise in the back of this level is worth 10d. per fathom for tin. The lode in Gundry's engine shaft, sinking below the 130 fm. level, is 7 ft. wide, composed of spar, mundic, and blonde, and yielding 1 ton of copper ore per fathom. There is no change to speak of in any of the stopes or tribute pitches since the last report.

**NEW CARADON.**—N. Richards, September 2: In driving east on No. 1 lode, at the 60 fathom level, we have intersected another small cross-course, which we have reason to believe has headed the lode north, and the men are now engaged driving in that direction to prove it. This lode west is getting a little larger and showing spots of mundic and yellow copper ore.

**NEW KITTY.**—William Vivian, September 3: The 40 fm. level, driving east of Thomas's shaft: Lode about 3 ft. wide, and letting out water freely. I am looking forward, and expecting an improvement on this point, seeing that they have at the uppermost levels in West Kitty a good course of tin a little to the east of this end. In the 20 fm. level driving east the lode is about 2 ft. wide, of a very promising character, producing 2 tons of copper ore per fathom, and some tintuff of very good quality. There is more lode standing in the north side of this level, from which there is coming a very large stream of water. We propose to begin next week to cut through this part to ascertain its value. The rise in the back of this level is yielding 2½ tons of copper ore per fathom. The lode in the 130 west of shaft is 4½ ft. wide, yielding good stones of copper ore, and is also worth 6d. per fm. for tin. The rise in the back of this level is worth 10d. per fathom for tin. The lode in Gundry's engine shaft, sinking below the 130 fm. level, is 7 ft. wide, composed of spar, mundic, and blonde, and yielding 1 ton of copper ore per fathom. There is no change to speak of in any of the stopes or tribute pitches since the last report.

**NEW TERRAS.**—Richard Eade, September 3: The masons' work of the new stamping-engine house will be completed this week. It is a substantial building.

As soon as the roof is on we will commence fixing the engine. The masons will then proceed with the building of the boiler-house. Most of the gear of the engine has been thoroughly overhauled, and we find it quite equal to new.

**NEW WEST CARADON.**—N. Richards, September 2: The new lode east in the 25 fm. level west, on the south part of the lode, has been driven 2 fm. The engine shaft, sinking below the 25 fm. level, is worth 20d. per fathom, and the winze sinking below it is worth 10d. per fathom. The other stopes maintain the values given last week. On Saturday next we intend sampling 25 tons of silver-tinted ore for sale on Friday the 11th inst.

**STANDARD LEAD.**—W. H. Borlase, September 3: There is no alteration in the mine calling for remarks this week, the weather appears to be changed and I think we shall have plenty of water very soon.

**SOUTH CONDURROW.**—W. Rich, September 2: The operations underground and at surface are being urged on as usual. There is very little alteration to notice in either the ends or stores since our report of last week.

**SOUTH DARREN.**—John Mitchell, September 3: The lode at 142 looks like this: there is a little lead in both ends. We are making good progress in driving. We are sinking the winze in the 130 west at a fair speed, and are still sinking on the south side of the lode. No. 2 stop in the 130 west is worked out; the men are now engaged timbering the bottom of the 120 fm. level. After finishing this work they will begin stoping the No. 4 stop in the 130 west. The other stopes maintain the values given last week.

**SNAEFELLS.**—J. Kewley, September 1: In the rise on the roof of the 120 fm. level the lode is 2½ ft. wide, the blonde has come more mixed through the lode, and the footwall there is a small rib of lead mixed with mundic. In the sump of the 100 fm. level, the lode is 4 ft. wide, and by the footwall there is a small branch of lead and blonde. We are leaving ore on the footwall which will have to be proved before we go much further. We have put the main rods in their places to-day ready for connecting in the morning. The masons have finished 112 ft. 20s. of the arch to-day, and the walling will be finished by the beginning of next week.

**SOUTH CONDURROW.**—W. Rich, September 2: The operations underground and at surface are being urged on as usual. There is very little alteration to notice in either the ends or stores since our report of last week.

**SOUTH FRANCES.**—C. Craze, August 31: The 246 west of Pascoe's is worth 20d. per fathom, this end is now 2½ fathoms short of the winze sinking below the 246, where the lode is worth 6d. per fathom for 12 ft. long, and we hope to hole these points in about 14 days, when a very important piece of stoping ground will be laid open. The 236 east is still in a very hard rock, the lode in this end is worth 6d. per fathom. A rise in the back of this level is worth 10d. per fathom. The 236 west is worth 20d. per fathom, and the winze sinking below it is 22d. some 2 fathoms before this end, is worth 45d. per fathom for 12 ft. long. There is no change in any other part of the mine calling for remark at present.

**SOUTH VAN.**—W. H. Williams, September 2: The 150 cross-cut south is driven 25 fms. At the 155 fm. west we have driven 30 fms. on the course of the lode, which in the bottom of the level is worth fully 3 tons of lead ore per fathom. There is a little lead in both ends. We are driving 25 fms. on the course of the lode, which in the bottom of the level is worth fully 3 tons of lead ore per fathom. The 150 cross-cut south is driven 25 fms. At the 155 fm. west we have driven 30 fms. on the course of the lode, which in the bottom of the level is worth fully 3 tons of lead ore per fathom. There is a little lead in both ends. We are driving 25 fms. on the course of the lode, which in the bottom of the level is worth fully 3 tons of lead ore per fathom. The 150 cross-cut south is driven 25 fms. At the 155 fm. west we have driven 30 fms. on the course of the lode, which in the bottom of the level is worth fully 3 tons of lead ore per fathom. There is a little lead in both ends. We are driving 25 fms. on the course of the lode, which in the bottom of the level is worth fully 3 tons of lead ore per fathom. The 150 cross-cut south is driven 25 fms. At the 155 fm. west we have driven 30 fms. on the course of the lode, which in the bottom of the level is worth fully 3 tons of lead ore per fathom. There is a little lead in both ends. We are driving 25 fms. on the course of the lode, which in the bottom of the level is worth fully 3 tons of lead ore per fathom. The 150 cross-cut south is driven 25 fms. At the 155 fm. west we have driven 30 fms. on the course of the lode, which in the bottom of the level is worth fully 3 tons of lead ore per fathom. There is a little lead in both ends. We are driving 25 fms. on the course of the lode, which in the bottom of the level is worth fully 3 tons of lead ore per fathom. The 150 cross-cut south is driven 25 fms. At the 155 fm. west we have driven 30 fms. on the course of the lode, which in the bottom of the level is worth fully 3 tons of lead ore per fathom. There is a little lead in both ends. We are driving 25 fms. on the course of the lode, which in the bottom of the level is worth fully 3 tons of lead ore per fathom. The 150 cross-cut south is driven 25 fms. At the 155 fm. west we have driven 30 fms. on the course of the lode, which in the bottom of the level is worth fully 3 tons of lead ore per fathom. There is a little lead in both ends. We are driving 25 fms. on the course of the lode, which in the bottom of the level is worth fully 3 tons of lead ore per fathom. The 150 cross-cut south is driven 25 fms. At the 155 fm. west we have driven 30 fms. on the course of the lode, which in the bottom of the level is worth fully 3 tons of lead ore per fathom. There is a little lead in both ends. We are driving 25 fms. on the course of the lode, which in the bottom of the level is worth fully 3 tons of lead ore per fathom. The 150 cross-cut south is driven 25 fms. At the 155 fm. west we have driven 30 fms. on the course of the lode, which in the bottom of the level is worth fully 3 tons of lead ore per fathom. There is a little lead in both ends. We are driving 25 fms. on the course of the lode, which in the bottom of the level is worth fully 3 tons of lead ore per fathom. The 150 cross-cut south is driven 25 fms. At the 155 fm. west we have driven 30 fms. on the course of the lode, which in the bottom of the level is worth fully 3 tons of lead ore per fathom. There is a little lead in both ends. We are driving 25 fms. on the course of the lode, which in the bottom of the level is worth fully 3 tons of lead ore per fathom. The 150 cross-cut south is driven 25 fms. At the 155 fm. west we have driven 30 fms. on the course of the lode, which in the bottom of the level is worth fully 3 tons of lead ore per fathom. There is a little lead in both ends. We are driving 25 fms. on the course of the lode, which in the bottom of the level is worth fully 3 tons of lead ore per fathom. The 150 cross-cut south is driven 25 fms. At the 155 fm. west we have driven 30 fms. on the course of the lode, which in the bottom of the level is worth fully 3 tons

west of the shaft, but before we can explore it the water must be drained a little deeper. This will be done as soon as possible, when we shall commence at once to clear the level, and at the same time push on the clearing and draining of the shaft.

**WHEEL METAL AND FLOW.**—William Argall, S. P. Curtis, September 2: The shaftmen have fixed lift to sink below adit level in Watson's shaft. We are pushing forward the laying down of the dressing-floors, and shall be prepared to start another puddle in the coming week. The engine and pulverisers are working very well, but the pulverisers are not doing the quantity stated they would do.

#### FOREIGN MINES.

**ALAMILLOS.**—August 26: The lode in the 20 driving west of San Martin's shaft is producing good stones of lead ore, valued at ½ ton per fathom. In the 20 driving west of Santa Aqueda shaft the lode became poor a few days ago, in the 130 driving east of Taylor's engine-shaft we have opened up a few feet on the lode, but it is of no value. The lode in the 130 driving west of Taylor's engine-shaft has declined in the past week. In the 80 driving east of San Victor's shaft the lode is smaller, and without lead. The lode in the 95 driving in the same direction has improved to 3 tons per fathom, and is opening up a few pieces of ground. In the 95 driving west of San Victor's shaft the lode continues to yield 2 tons in a fathom. Parras' winze is sinking below the 10 in good stopping ground, producing 1½ ton per fathom.

**ALMALA AND TIRITO.**—J. Clark, August 7: Cruz Verde Mine: The north vein is sunk about 39 ft. below bottom of the level; there is a width about 2 ft. of green ore in the winze. We have started to sink a second winze about 50 ft. south; it is also giving stones of green ore.—Providencia: Since last report the north drift has improved a little. We are rising now in this point to see if the ore improves above; if so, we will start the drift again to see if the ore makes north of the slide.—Virgin: We are making good headway here. We are drifting north to strike the old workings, and I think in another week we shall break them in some places. The latest assays were as follows:—Ore from southern winze in Cruz Verde, 32 ozs. per ton; ditto northern winze in Cruz Verde, 42 ozs. per ton; ditto rise in north drift, Providencia, 31 ozs. per ton.

**COLORADO UNITED.**—Colonel Baldwin, August 9: 14th level east has been driven since last report 10 ft.; total distance driven, 215 ft. Quartz and felspathic gneiss. This level is now looking more promising than at any time since I took charge of the property. Scams of mineral appear in the heading through a width of about 14 in. of the rock. Fine slickensides appear in the hanging-wall. Of course, there is not mineral enough to save yet, but the indications are good. The cross-cut north from 12th level has been driven since last report 12 ft.; total distance driven 63 ft. The 12th level west has been driven since last report 5½ ft.; total distance driven 7 ft. Shows some scattered mineral. The 11th level west has been driven since last report 11 ft.; total distance driven 60 ft. About the same in appearance as at my last report. We are saving a little mineral in driving. Size of vein, 1 ft. My drift in the 12th level cross-cut north is a splendid success. The country rock in this cross-cut is extremely hard, and could not be run by hand drilling for less than \$30 per foot. If indeed it could be run for that, I am now able to give you the cost of the power drill for the last fortnight fully. We run the drills during the day shift, and do the hoisting and most of the pumping at night. We cannot hoist and compress air with the same engine at the same time. It was for that reason that I suggested the necessity of getting a compressor after a while, with a steam cylinder attached. In running the power-drill I employ two men, one at \$3 and one at \$2.50 per day. It costs about \$2 per foot for explosives. During the day I employ one engine-driver at \$3 one-half of which is chargeable to each power-drill. One fireman at \$2.50, half of which is charged to each drill. We are burning 1½ cords of fuel during the day shift costing \$3.89 per cord; \$2.50 would, therefore, be a liberal estimate for each drill; \$1.50 would be a fair estimate for disposing of the broken rock in 1 ft. of the cross-cut tunnel at present. The cost will increase somewhat as the cross-cut tunnel is extended. Now, to recapitulate. We have in running the 12th level drift, the following expenses:—Labour per foot, \$2; explosives per foot, \$2; engine-drill per foot, \$1.50; fireman per foot, \$1; total, \$1.475. This is a good record, and it shows that the drill is not only working much more rapidly than could possibly be done by hand drilling, but at one-half the expense. I have not removed the water from the winze below the 13th level for this reason. The surface water is running into it constantly from the upper workings, and if I took it out it would be at a cost of \$40 or \$50, and as soon as I examined the winze it would immediately fill up again. I am now timbering the seventh level for the purpose of catching the surface water there, and carrying it in a flume out at the Minon Tunnel. When this is done I can take the water off this winze once for all. Besides, I am getting towards a point under it in the 14th level, and it is my purpose to finish the winze as soon as I reach that point in the 14th. However, if you still think it best to take out the water I will do so on receipt of instructions. I am now taking out ore which I propose to ship to you in September.

**DON PEDRO GOLD.**—Mine Report for July: Works for Production: Waller's level has been extended 67 feet, a portion (9 fms.) being in undisturbed ground, which contains auriferous branches or veins, some giving very fair streak work samples. These have been cut through only up to the present, a side extensions and explorations for ascertaining the prospects for gold in depth remaining in abeyance to prevent deterring the advance of the tunnel. Latterly broken stuff has again come in; some of the layers resemble wash-dirt; and from the heading in line with the small ravine running upwards from the entrance to Hillek's level, this may be sand deposited near the bottom. It has hitherto sampled moderately well, and is being treated at the reduction works; and we are glad to notify an improvement in the general results since encountering the undisturbed ground. Ediey's level has, from the force being required at more urgent work, been kept in abeyance during the latter part of the month.—Corrigo: The clearing of a space for a stoke and blanket beds has been completed, and the latter fixed. The washing of the deposit of sand above the aqueduct will now be proceeded with.—Works for Development: Gordon's Shaft: The work of removing the pillar of ground to bottom of the inclined drivages, which is nearing completion, and commencing the tunnel to connect with the permanent incline has been retarded by a collapse, we think, of a portion of the adit level underneath the shaft, causing a vacant space below the floor of the latter, which it was necessary to fill. This has been completed with material sent down from the excavation necessary to be made at surface for the horse-whim to be placed over the shaft out of the line of the transmitting rope from turbine.—Adit level: The side level for evading the collapse named in last report has been advanced 44 ft. in soft sandy ground, with water in the lower half. A communication will early be opened to the main tunnel to ascertain if the break has been passed.—Maquin Water-Course: The repairs commenced have latterly been in abeyance, owing to insufficient forces for other points of more immediate importance.—Pumping Machinery: The tunnel for turbine tail race has been advanced 35 ft. in talcose schist, which emits a little water, and requires close timbering, but is otherwise favourable for progress.

**FORUCA.**—August 26: Canada Incosa: In the 90, driving west of San Pedro's shaft, the lode has increased in size and value during the past few days to ½ ton per fathom. In the 120, driving east of O'Shea's engine-shaft, there is no alteration in the lode, but the ground has become easier for driving. Some good stones of ore have been broken in the 110, driving west of Lownde's shaft, during the fortnight, but it has again failed. The lode in the 110, driving east of Lownde's shaft, is in contact with a large cross-course, and is consequently valueless. In Assis's winze, sinking below the 100, the lode yields spots of ore only, and the ground is hard.—Los Salados: In the 175, driving east of Taylor's engine-shaft, the lode is carrying a small branch of ore, but not enough to attach a value to it. The ground in the 150, driving in the same direction, has become slightly disordered, and the lode has consequently declined in value to 1 ton per fathom. The lode in the 145, driving east of Taylor's engine-shaft, is laying open very valuable stopping ground, yielding 2½ tons per fathom. In the 92, driving east of Palgrave's shaft, the lode is passing through a hard bar of ground; the lode is smaller, and of less value. Its present worth being ½ ton per fathom. Miron's winze, sinking below the 145, is held to the 160, and has greatly improved the ventilation; the lode produces 2½ tons per fathom. Little progress is being made in sinking Parras' winze below the 80, the men being employed about other work; the lode is valued at ½ ton per fathom.—San Anton: The lode in the 40, driving east of Tesoro engine-shaft, is regular, and turns out good stones of lead ore, worth ½ ton per fathom. In the 40, driving west of Tesoro engine-shaft, the lode is large and promising, yielding ½ ton per fathom, and is letting out much water. We have not yet met with any good result in the 30 driving in the same direction. Emilio's winze is sinking below the 30 in productive lode, worth 1 ton per fathom. The lode in Gómez winze, sinking below the 3, is compact, and the ground is moderately easy for sinking; the lode producing ½ ton per fathom.

**HORNACHOS SILVER-LEAD.**—The statement for July working recently received shows that the operations during that month, though restricted on account of fever and harvesting, were not unsatisfactory. The drifts in the 6th and 7th levels, north and south, were extended, and stopes in the 2nd, 3rd, 4th, 5th, and 6th levels were in operation, the average yield from all points being 13 cwt. of silver ore per fathom. The worst of the unhealthy season having passed the results for August will probably show an increased output, and notwithstanding the heavy drawbacks during the last three months the production of ore will about meet the costs of the mine.

**LIMA.**—August 26: Poso Ancho Mine: The lode in the 135 driving east of Warne's cross-cut has improved to 1½ tons in a fathom during the past week. In the 130 driving west of Warne's shaft the lode is very open, and of a promising appearance, letting out a great quantity of water. Its present worth is 2 tons per fathom. In the 115 driving in the same direction there are stones of ore in the lode, but not enough to value. Good progress is being made in the 155 driving south of Peill's engine-shaft. The lode in the 155 driving west of Peill's engine-shaft is large and kindly, and moderately easy for driving through, yielding 1 ton in a fathom. In the 155 driving east of Peill's engine-shaft the lode is small, consisting chiefly of quartz and lead ore, valued at ½ ton per fathom. The lode in the 135 driving in the same direction is still split into several small branches, each containing a little ore, worth ½ ton per fathom. In the 120 driving east of Peill's engine-shaft the lode is small and poor, and the ground hard for driving. Quintino Mine: There is no improvement in the 115 driving west of Taylor's engine-shaft. The lode in the 115 driving east of Taylor's engine-shaft is opening up moderately productive ground, yielding 1½ ton in a fathom. In the 100 driving east of Taylor's engine-shaft the lode is regular and well defined consisting of carbonate of lime and lead ore, valued at 2 tons per fathom. The lode in the 90 driving in the same direction contains a little ore, but not enough to value. Diaz's winze is sinking below the 100 in a powerful and productive lode, worth 2 tons in a fathom.

**MYSORE GOLD.**—B. D. Plummer, August 8: Mining Operations: The coolies gave great satisfaction by the work they did last month. Taylor's shaft was sunk by hand labour 14 ft. I have set the shaft to be sunk 8 ft. deeper, when levels will be commenced north and south on the course of the lode. The lode is 8 ft. wide, and improving in value. The assay this week is 3 ozs. 6 dwt. 2 grs. In the 230 south end we have driven through to the old workings, and in a few days more drifting will be commenced by the side of the old gunnies. The lode in the winze in bottom of the 230, south of shaft, is 5 ft. wide; assay value 5 ozs. 17 dwt. 14 grs. per ton. In consequence of the delay in getting the winding apparatus to work, there is a large accumulation of stuff in the 230 north end, and for the present I am obliged to suspend it. Winze in 173 north on east lode is 16 ft. 7 in. below the level; the lode is 4 ft. 6 in. wide, no assay made this week. The 173 south end on west lode contains small branches of quartz, which give an assay of 18 dwt. 6 grs., but there is so small a quantity

of quartz, its value can scarcely be estimated. The prospects of the mine are as good, or perhaps better than ever; but from the interruption of the old workings we are unable to break so much quartz as we otherwise should do. However, as soon as the new shaft gets down below the ancient workings, and we thoroughly unbottom them at Taylor's shaft, the mine will be got into such a position as to enable us to break large quantities of quartz. We commenced the new shaft, south of Taylor's about a fortnight ago, since which it has been put down 40 ft. 8 in.

**NERRUBDA COAL AND IRON.**—The coal sales for the month of July last amount to 1915 tons.

**NEW EMMA SILVER.**—George Collins, August 15: My last letter is under date of 5th inst., since which time east level has been extended 18 ft.; total distance from the cross cut now 138 ft. Rook is somewhat harder, otherwise no change of importance. I am considerably disappointed at not getting ore before now, as all indications gave reason to expect it. However, I have still strong hopes of finding ore on this level yet. We are not yet far east as we found it on the level above. Our coal is holding out better than I expected, and if no extra flow of water I think it will last until 15th November or 1st of December. Machinery working smoothly.

**NEW HOOVER HILL GOLD.**—August 20: The Blowers: We are making rather slow progress sinking owing to the closeness of the ground. The vein in bottom and the stringer of quartz in the north end continues about the same as last reported. In the winze below the 230 north we are cutting into the footwall, where we hope to be able to cut the main lead; the vein in the winze as last reported continues to carry a low grade of ore. In the stopes below the 170 there is no change to note.—Openings: The work of putting in the steam-pump as last reported is complete, and fair progress is being made sinking the shaft in the stops below the 40 ft. drift, we are taking out some low grade ore. We have dispensed with the Hawkins' shaft and whim, and are doing all the hoisting by steam through the open cut. In the No. 1 and 2 stopes the ore continues about the same as last reported, with some slight improvement in quality. In the prospecting drift north from west cross-cut at 135 fair progress is being made there is no production to mention in the appearance of the ground.—Result of Milling: The production for the first half of the present month is fair, being about 250 ozs. of gold, and for the last few days the production has continued in about the same proportion.

—Telegram: Manager: Result of milling for August: 762 tons of ore crushed, producing 538 ozs. of gold of the approximate value of \$2750.

**NUNDYDROOG GOLD.**—B. D. Plummer, August 8: Mining Operations: The work we are doing underground, except the sinking of the new shaft below the 95, is confined entirely to cutting ground and setting in timber, being a continuation of Taylor's shaft on the underlay, and the continuation of the new shaft sunk from surface to join the shaft we are sinking below the 95. The work progresses satisfactorily. Before the engine is erected and got to work, and starting solid in good earnest, I shall not be able to give you much news. The work shall be pushed forward as quickly as possible.—Health: I am glad to inform you that at present the health of the Europeans is satisfactory.

—Telegram: Manager: Result of milling for August: 762 tons of ore crushed,

**ORGANOS GOLD.**—Mr. J. G. Green, June 11: We have been continually troubled with commissions, who take our men for war purposes, or drive them into hiding places, so that nearly as much work has been done as I expected, and the cost for the same reason has been higher.—Mine: All work has been confined to the Te Encuentro portion of the company's property. Two levels are being extended westward on the course of the lode. No. 1 has at present about 6 fms. of cover, and produces excellent mineral. We cannot, however, stop the back, but have to work it by open cutting. No. 2 level is 8 fms. under No. 1; the lode here is fluctuating in value, sometimes producing splendid stuff well charged with lead and pyrites, and assaying 4 ozs. of fine gold or 17t. per ton. We are opening stoping ground in this level. We are driving a deep cross-cut, if indeed it could be run by hand drilling for less than \$30 per foot, if it could be run for that. I am now able to give you the cost of the power drill for the last fortnight fully. We run the drills during the day shift, and do the hoisting and most of the pumping at night. We cannot hoist and compress air with the same engine at the same time. It was for that reason that I suggested the necessity of getting a compressor after a while, with a steam cylinder attached. In running the power-drill I employ two men, one at \$3 and one at \$2.50 per day. It costs about \$2 per foot for explosives. During the day I employ one engine-driver at \$3 one-half of which is chargeable to each power-drill. One fireman at \$2.50, half of which is charged to each drill. We are burning 1½ cords of fuel during the day shift costing \$3.89 per cord; \$2.50 would, therefore, be a liberal estimate for each drill; \$1.50 would be a fair estimate for disposing of the broken rock in 1 ft. of the cross-cut tunnel at present. The cost will increase somewhat as the cross-cut tunnel is extended. Now, to recapitulate. We have in running the 12th level drift, the following expenses:—Labour per foot, \$2; explosives per foot, \$2; engine-drill per foot, \$1.50; fireman per foot, \$1; total, \$1.475. This is a good record, and it shows that the drill is not only working much more rapidly than could possibly be done by hand drilling, but at one-half the expense. I have not removed the water from the winze below the 13th level for this reason. The surface water is running into it constantly from the upper workings, and if I took it out it would be at a cost of \$40 or \$50, and as soon as I examined the winze it would immediately fill up again. I am now timbering the seventh level for the purpose of catching the surface water there, and carrying it in a flume out at the Minon Tunnel. When this is done I can take the water off this winze once for all. Besides, I am getting towards a point under it in the 14th level, and it is my purpose to finish the winze as soon as I reach that point in the 14th. However, if you still think it best to take out the water I will do so on receipt of instructions. I am now taking out ore which I propose to ship to you in September.

—PESTARENA UNITED.

—H. J. Gifford, September 1: Val Toppa District: The end south in Zero level has met with a small vein of quartz, and the ground is somewhat easier for driving. In the end south on eastern branch, in the intermediate level under Zero, the part of the lode which was being followed has died out in the bottom, and the men have been put to strip down the quartz behind the hanging-wall to continue driving on the other side. In the cross-cut east from the intermediate level under Zero, the small leader of quartz has now joined with another irregular body of ore coming up from the bottom, which takes off more in the usual direction of the lode, and carries good patches of pyrites, yielding 8 tons per fathom at 12 dwt. per ton. In the end south on eastern branch, in No. 1 level, the lode is 6 metres wide just above the slide, but is somewhat mixed with schist. In order to open out the ground faster, it produces a part of the lode will be carried in the end, along the hanging-wall. It produces 40 tons per fathom of 8 dwt. per ton. The end south from cross-cut, at No. 1 level, shows no ore at all in the end, and only a small vein in the back. A rise has now been started in order to prove this, and for the present the end has been suspended. The end north from cross-cut at No. 1 level produces some rich stones of solid pyrites and galena, some of which is interstratified with the schist, but the lode is very irregular, and is cut off in the back by a floor, which lets out a large quantity of water; it yields 5 tons per fathom of 2 ozs. per ton. In the end south on eastern branch, in No. 2 level, the ore is holding down flatter, and the lode still continues very regular, yielding 5 tons per fathom of 8 dwt. per ton. The gold returns from the Pestarena United Mines for the month of August were as follows:—From Pestarena District, 268 tons, 18 dwt. 6 grs., from 619 tons of ore, equal to 8 dwt. 16½ grs. per ton; Val Toppa, 18 tons, 19 dwt. 16 grs., from 375 tons, equal to 10 dwt. ¼ gr.; total, 456 tons, 17 dwt. 22 grs., obtained from 94 tons of ore amalgamated, showing an average of 9 dwt. 4½ grs. to the ton.

**RUBY AND DUNDERBERG CONSOLIDATED.**—August 8: Dunderberg: There is considerable low grade ore being extracted by tributaries between the 300 and 400 ft. levels which will assay less than \$20 per ton on which the furnace will pay 40 per cent. of the assay value, there are nine tributaries at work; 6 tons of ore shipped.—Lord Byron: The shaft has been sunk 8 ft. during the week; total, 150 ft., below the funnel, drifting will be commenced immediately, owing to the warm weather, which causes a downcast draft through the mine; we have been unable to work the engine during the week (which is the cause of the small shipments this week) we are now engaged in extending the smoke stack to a point about 66 ft. above the tunnel level, which we hope will remedy all defects. The stopes at north end of No. 1 cave is producing small quantities of high grade ore; a cave which may prove to be extensive was encountered a few days ago, as usual this cave is filled with large boulders and sediment overlaying the ore. There is no change in the stopes at top of No. 2 cave and above the tunnel level, both places are producing some low grade ore; there are 14 tributaries at work, 7 tons of ore shipped. Home Ticket: The winze at the bottom of the tunnel level has been sunk 7 ft. during the week; total 23 ft., there is no improvement in the ledge matter; the 30 ft. level has been advanced 11 ft. during the week without change; two tributaries at work in the old stopes near the surface.

—Telegram: Eureka, September 1: 62 tons ore shipped; 70 tons smelted, producing to company \$360.

**GOLD AND SILVER.**—Messrs. Pixley and Abel write under date September 3: Gold: With the exception of a small shipment to Germany there has been no enquiry for gold. The Bank has purchased since our last 133,000, and has sold 295,000. Of this 245,000 goes to Egypt, and the remainder to South America. The chief arrivals are 5000c. from Shanghai, 97,000c. from Buenos Ayres, 2600c. from New York, 9000c. from the Cape, 89,000c. from Calcutta; total, 195,600. Silver: A panic has set in in India, and the price which we quoted last week—43½d.—has fallen to 45½d., at which rate the market closes perfectly nominal. The only arrival during the week has been 50,000c. from New York, but a considerable amount from Chile is due shortly. The Amazon takes 59,000c. to Bombay. Mexican dollars have remained steady at 43½d., on receipt of further orders on French Government account. The only arrival during the week has been a small consignment from New York. Exchange: The following allotments were made yesterday at the Bank of England: Bills on Calcutta, £5,780,000, average rate 1s. 6½d.; bills on Bombay, Rs. 50,000, average rate 1s. 6½d.; bills on Madras, Rs. 102,000, average rate 1s. 6½d. 22. No transfers were sold. Tenders for bills at 1s. 6½d. receive in full. No alteration has been made in the amount for next week. The exchanges are—Bombay and Calcutta, 1s. 6½d.; Hong Kong, 3s. 6½d.; Shanghai, 4s. 9½d.—Quotations for bullion: Gold: Bar gold, fine, 7s. 9d. per oz. standard; bar gold, containing 20 dwt. silver, 7s. 10½d. per oz. standard.—Silver: Bar silver, fine, 4s. 9½d. per oz. standard; bar silver, containing 5 grs. gold, 48½d. per oz. standard; cake silver, 52d. per oz.; Mexican dollars, 48½d. per oz. Quicksilver, 5l. 10s. Discount, 3 per cent.

**COPPER ORES.**—Sampled August 19, and sold at Tabby's Hotel, Redruth, September 3.

Mines.	Tons.</
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25 Wheal Crebor, 1s. 50 Potosi, 1s. 3d. 100 New Albion, 22s.  
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**M**ONTHLY (SEPTEMBER) RESUME of the STOCK MARKETS.

**B**RITISH, COLONIAL, and GENERAL INVESTMENT TRUST (Limited).—While we are in favour of investments in Colonial Loans as a means of obtaining a fair return on capital, we more confidently recommend an investment in the Shares of the above Trust, and for the following reasons:

An Investor in the Colonial Bonds—more especially of the older issues—can obtain a rate of dividend averaging (say) 4% to 4½ per cent.; but as these loans are all redeemable in a certain term of years at par, he must deduct so much from this rate of interest to make allowance for the premium he pays in the first instance—in other words, the sinking fund necessary to equalise the premium varies from 4% to 4½ per cent. per annum.

Against this we set a similar investment in the Shares of this Trust, and point out the advantages to be gained by so doing. This Trust deals largely in these Bonds, applying for considerable amounts in the new issues, and thereby adding to their incomes from the premiums obtainable on an allotment.

The general business of the Trust includes all the most lucrative, and at the same time safest, forms of security, and while devoting attention to the earning of good profits, the management discriminates between what is good and what is bad, when tempted by the prospect of high interest.

The scope offered is so large that there is never anything like stagnation in the business of the Trust, and the Capital is kept fully and remuneratively employed over a large and varied field. The Securities dealt in are, as a rule, as safe as Colonial Bonds, and being all dividend-paying Securities, it requires only a close attention to the various markets in which the Trust is interested, to enable the addition to the current dividends to be earned, and that the interests of the Trust are in good and careful keeping has been proved by its past record of Dividends and Bonuses. This will be continued we make no doubt, and as we anticipate a continuance of the present improving condition of the Money and Stock Markets, and we may say of trade generally, we fully expect to see this Trust take a foremost position among the Securities of the day.

Investors, therefore, so far as security goes, are equally safe as with an investment in Colonial Bonds, but with the frequent turn over of the capital the return obtained is more than cent. per cent. better. The last dividend paid by the Trust was at the rate of 10 per cent. per annum, with a bonus of 2 per cent., and nothing less than 10 per cent. has ever been paid.

The unflinching regularity of the dividends, which are payable quarterly, and the freedom from the anxiety connected with market fluctuations, are to investors strong inducements.

We are convinced that if the constitution and working of these Trusts were better understood and appreciated the demand for the shares would be increased. A large capitalist can subdivide his capital in such a manner as to make the loss of one of his Securities a matter of not much consequence, but to the investor possessed of moderate means the opportunity of dividing his capital is extremely limited. To investors who come under this description, as well as to large capitalists, a Company such as the BRITISH, COLONIAL, and GENERAL INVESTMENT TRUST, confidently appeals, and offers the advantages which belong to the large capitalist. With a combination of capital almost anything is possible, and the results of the working of the Trust are the best arguments in the truth of our assertions.

The recent improvement in Stock Exchange business has been all in favour of a Company such as this, as its Investments being of a general nature an all-round benefit is obtained on its Securities and purchases. The price of the Shares is £5 2s. 6d. for each fully paid £5 Share, with no further liability, with a quarter's dividend due this month, and we recommend them to the attention of investors generally.

It should be noted that, since we began to recommend these Trust Securities, the value of nearly all descriptions has steadily improved, owing to the growing demand for investments of this class, and we are sure that this improvement and appreciation will continue, so that the present is a most favourable opportunity for securing an interest in a safe and progressive investment.

Extract from Circular 445, containing full particulars of this and other similar Investments, post-free on application.

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LONDON, E.C.

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You have a first-class property, you are steadily opening up your reserves, and when you have erected the machinery which I recommend, you will have one of the best silver-lead mines in Wales.

In order to treat this ore successfully, you should have from ten to a dozen puddlers, or disintegrators, with, say, half a dozen jiggers, and you could at once return 50 tons per month from this flocken lode, and at the same time add fully 2 per cent. per month to your reserves. You will, therefore, see that you have a prize of no mean order already laid open, requiring only a little inexpensive machinery to convert it into actual money and profits."

I shall be prepared to take the entire management of the property without any remuneration, save a percentage on the profits, and this is an offer that I would not make with regard to any mine I have inspected during the last three years, and they have been over 50. I may add that the future of the mine in depth is assured."

Mr. Kitto's full Report can be had on application to

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#### THE MINING JOURNAL, Railway and Commercial Gazette,

LONDON, SEPTEMBER 5, 1885.

#### THE COPPER TRADE.

The unprecedentedly low value of copper has recently attracted the attention of the public, and features connected with the market have been freely expressed in the columns of the *Times*. The first point which attracts attention is the heavy and ever increasing supply, and to this cause alone must be attributed the reduced value. The following figures will show the total supplies for the 12 months ending on the 31st August of the named years—

1881	.....	Tons	74,021
1882	.....	Tons	84,208
1883	.....	Tons	91,231
1884	.....	Tons	98,603
1885	.....	Tons	117,065

This excessive quantity arises chiefly from an annual increase in the American supply, and reference to statistics will show that the supply from that country has for every year for the last few years doubled itself, so that during the last 12 months we have had a total supply from North America of about 35,000 tons. At the same time there seems every probability that at least the same rate of supply will be maintained, because most of the largest mines are under contract to continue to supply in heavy quantities, and to quote the remarks on this question from the *Times*, which were published in last week's *Mining Journal*, "the Anaconda and the Parrot Companies, and the Calumet and Hecla are actually increasing, while the Tamarack is rich in promises." It is a fact that the low prices have necessitated the closing of a few mines there as well as elsewhere, but others have so materially increased their output that the total supplies, as we have already seen, have vastly increased. The Montana district is an entirely new source for the supply of copper, and it is only during the last three or four years that copper has been brought from those parts in any quantity. During that time the railways have been extended to the principal mines, the means of transit have been economised, and these various mines which have done so much in their infancy continue to vastly increase their output as they rapidly develop. To remedy the evils arising from the excessive American supply the system of "pooling" has been suggested, but it is very questionable whether such a combination could be arranged amongst the various proprietors of the different mines,

and at any rate for the present it could not be carried out on

account of the existing contracts to maintain the supplies for lengthened periods. Besides very fair profits are secured for the shareholders of the principal mines even at the reduced prices, and therefore it is not likely that they will be very ready to restrict

their output chiefly for the benefit of copper holders in this

country, or to enable smaller mines to compete with them. But

it is not only from America that supplies have increased. The

depression in the market is intensified from an increase in supply

from Spain during the last five or six years of about 10,000 tons,

and this

## The Mining Market: Metals, Ores, &amp;c.

METAL MARKET—LONDON, SEPTEMBER 4, 1885.

IRON.	£ s. d.	£ s. d.	TIN.	£ s. d.	£ s. d.
Pig, G.M., f.o.b., Clyde...	2 2 5	—	English, ingot, f.o.b...	94 0 0-	—
" Scotch pig, No. 1 Gyrtsche...	2 6 6	—	" bars	94 0 0-	—
" " Coltness	2 8 6	—	" refined	95 0 0-	—
" " Clyde	2 6 0	—	Australian	92 2 6-	—
" " Govan...	2 1 6	—	Bancs	nom.	—
Bars, Welsh, f.o.b., Wales	4 10 0-	—	Straits	32 0 0-	—
" in London	5 0 0-	—			
" Stafford,"	5 15 0- 6 0 0	—	Tough cake and ingot	45 10 0- 48 3 0	—
" in Tyne or Tees...	4 15 0-	—	Best selected	47 0 0- 48 0 0	—
" Swedish, London...	9 0 0- 9 10 0	—	Sheets and sheathing	51 15 0- 55 0 0	—
Rails, Welsh, at works...	4 10 0-	—	Flat bottoms	58 0 0-	—
Plates, ship, in London...	6 10 3- 6 15 0	—	Wallaroo	nom.	—
Hoops in London...	5 17 6- 6 0 0	—	Burra, or P.C.O.	52 0 0-	—
Nail rods, in London...	5 15 0- 6 0 0	—	Other brands... nom.	50 0 0- 53 0 0	—
STEEL.			Chilli g.o.b.,	42 12 6- 42 15 0	—
English spring...	12 0 0- 18 0 0	—	QUICKSILVER.		—
cast	30 0 4- 35 0 0	—	Flaska, 75 lbs., war...	5 17 6-	—
Swedish, keg...	12 0 0-	—	PHOSPHOR BRONZE.		—
fag. ham...	12 10 0-	—	Alloys II...	£98 0 0	—
Galls at works...	4 15 0- 5 0 0	—	V.	105 0 0	—
Light, at works...	5 15 0- 6 0 0	—	VI. and VII.	120 0 0	—
LEAD.			XI.	96 0 0	—
English pig, common...	12 0 0-	—	Duro A, Duro B	95 0 0	—
" L.B. ....	12 5 0-	—	ANTIMONY	£236 10 0- £37 3 0	—
" W.B. ....	12 10 0-	—			
sheet and bar...	13 2 6-	—	TIN-PLATES.	per box	—
" pipe...	13 12 6-	—	Wire	53 1/4- 57 1/4d.	—
" red...	14 10 0- 15 0 0	—	Fibres	7 - 7 1/2	—
" white...	16 0 0- 19 0 0	—	Sheets	6 - 6 1/2d.	—
" patent shot...	14 15 0-	—	Yel. met. sheath, & sheets	4 1/2 - 4 1/4	—
Spanish	11 10 0- 11 12 6	—	TIN-PLATES.	per box	—
SPELTEN.			Charcoal, 1st quality	0 18 0- 18 0 0	—
Glasian ordinary brands	7 6 14 10 0	—	2nd quality	0 17 0- 18 0 0	—
special brands	14 10 0- 14 12 6	—	Coke, 1st quality	0 15 0- 0 16 0	—
English Swans...	14 10 0- 14 12 6	—	" 2nd quality	0 14 3- 0 15 0	—
Sheetzinc...	18 15 0- 17 2 6	—	Canada, Staff, or Gla. t.	£ 17 6- 9 2 6	—
At the works, 1s. to 1s. 6d. per box less for ordinary; 1s. per ton less for Canada; 1s. 5s. per box more than 10 quoted above, and add 5s. for each X. Terne-plates 2s. per box below tin-plates of similar brands.			at Liverpool	—	—

## GENERAL REMARKS.

With the exception of Scotch pig-iron, which has been fairly active, our markets have been for the most part quiet, and business at the fore part of the week was transacted at reduced prices. Yesterday evening, however, there was a general slight recovery, owing, no doubt, to the advance in the Glasgow Warrant Market, it being argued, and not without reason, that if iron were to materially improve, other metals would, in all probability, quickly follow suit. Iron yesterday may have stiffened from the influence produced from a leader in the *Times* having brought before the public some of the most favourable features connected with that market. But surely this is not a time for artificially enhancing the value of metals. No possible good can arise therefrom, and much harm to the trade in general may follow. There is the fact that during August a positive increase took place in public stocks in Glasgow and Middlesborough alone of no less than 25,000 tons. Copper stocks increased by about 1600 tons, and tin stocks increased by nearly 150 tons. That is the result of the month's business that has just passed, and to establish an advance upon such advices is to put it upon a very feeble foundation. The little rise may attract a few operators, and thus cause a certain amount of temporary vitality to the market, but there is positively nothing to cause any permanent improvement yet awhile. Speculation will often do good, and materially help to restore prices when they have been kept down, say, from a depression merely in demand, but it will do no good when supplies are excessive, and so very much beyond actual requirements. When a market is depressed from too great a supply their speculation tends to increase that supply, and, consequently, checks or prevents any restoration of prices, instead of giving the desired relief to the market. For a time it may have a beneficial influence, but the ultimate result is only to cause a still greater reaction, to produce a most unhealthy feeling, and to generally disorganise the markets. Excessive speculation just now therefore could not be viewed favourably, nor is it likely to be carried to extremes, because there are numerous holders most anxious to rid themselves of their stocks upon the smallest advance, and the more prices improve the greater will be the realisations, while still further the great increase in stocks to which we have made reference will deter speculators from buying beyond certain limits. A good harvest and low prices may be a great temptation to operators, but the full merits of the market must also be taken into consideration, otherwise transactions are likely to prove unprofitable, and the heavy losses already incurred will be still further increased. A mere feverish excitement cannot create a revival of trade, and therefore it may be as well to throw a damper at the outset upon the little extra speculative feeling that has been springing up during the past few days.

## COPPER.

During the greater part of the week this market has displayed an easy tendency, and business has been quiet. The principal feature has been the acceptance of the lowest price on record, but this is now becoming such a common and ordinary characteristic, that it fails to tempt buyers into the market. So many operators have been recently crippled from making purchases on this account that they hesitate before buying again. When prices were even 10s. per ton higher than what they are now the same cry was raised, and buyers then congratulated themselves upon the bargains they thought they had made in buying at the lowest prices ever accepted, and so, as the market has dwindled down speculators have more or less continued to purchase, and thereby greatly increased their original losses; and now, disgusted with their recent operations, almost ruined by their heavy losses, and perhaps totally unable to continue buying, even if they were so disposed, they realise as far as possible without altogether destroying their market, and especially so when the slightest spurt is effected in prices. The market at the commencement of the week was particularly easy, which may be accounted for from a variety of reasons. In the first place, the statistics which were published could scarcely have been more unfavourable, showing an increase in the total visible stock for the month of August of 1660 tons, the total amounting to 53,389 tons, against 53,723 tons on the 31st July last. The supply last month was 9523 tons, and the deliveries 7357 tons. Hence during the month of August, notwithstanding a moderate business was being transacted, the supply was a long way ahead of actual requirements, and in consequence stocks continue to accumulate. This, however, is not the chief cause of the existing depression. If there were only an increase in stocks during one month merely, a temporary ill effect might be anticipated, but it is the constant and ever-growing supply that is knocking-down prices. The 14,000 tons increase in stocks during the past 12 months is what is unsettling and disorganising the market, together with the probability, we might say the almost certainty, of a still further increase in forthcoming supplies. Another matter also which greatly influenced the market at the commencement of the week was the announcement of the Chili charters for the last fortnight of August as 2100 tons, the shipments 4000 tons, and the Valparaiso Exchange was quoted at 23. These advices show that there is no prospect of any reduction in the supply from Chili, and in spite of the stock of Chili bars now being extremely heavy, some 8400 tons more than what it was at the same time of last year, still there appears every prospect of that stock being made still heavier. For

reasons which we brought under the notice of our readers in our last issue, there is not the demand amongst smelters for Chili bars that there is for lower produced copper, with the consequence that bars come to this market principally to be put into the public warehouses, and to increase the stocks of the already overburdened holders. A revival just now would undoubtedly be generally welcomed, provided it arose from legitimate causes; but a forced revival, at which it seems some attempt is about to be made, would in the end do more harm than good. A rise should be based upon the true merits of the article itself, in order to be of any permanent value, and not upon mere "bulling." Premature advances are invariably more damaging to a market than if prices were left to take their regular course. A forced revival means building upon false hopes, and upon an unsound foundation, and which no thorough business man would think of doing for one moment, as the gain would in no way be commensurate with the risk.

To ensure a lasting improvement in prices of copper there must be an increased *bona fide* demand of such an extent as will be equal to the increased supply; in fact, it should rather exceed it than otherwise. Now, up to the present time that improved demand does not show itself, for at the close of August there was, as we have already seen, a further increase of some 1600 tons in stocks, and a full charter of 2100 tons to be taken into account in the next return, besides the deliveries were also extremely moderate. Therefore, since there are only very moderate deliveries, the stock largely increased, the total visible stock now being 55,389 tons, and the last charters above an average, or in a word supplies excessive, where, it may well be asked are the justifiable reasons for an advance. Simply because the price is lower than formerly? That, indeed, would be a very poor reason, low prices being the result either of bad trade or over-production. The probable reason is that present holders are losers, but if they originally paid too much, that is their affair, and they must put up with the loss, but that is no reason why the market should be inopportune disturbed. The reduced prices, no doubt, go hard with holders, and those who have prompts coming due, but the position of the market cannot be changed to suit private interests. A remedy must be discovered in another way than that of a forced revival, placing our market in a false position, and lulling holders into a false security.

## IRON.

This market remains steady, prices showing but little alteration. We start the month of September with an increased public stock in Glasgow and Middlesborough, compared with what there was a month ago of about 25,000 tons, the chief increase being in Middlesborough. This is a fact which calls for special comment, because during the last few weeks there have been rumours circulated of better trade, and particularly have such reports come from Middlesborough, the place where the increase in stocks is largest. The Cleveland ironmasters' returns show an increase in stock for August of 14,000 tons, the total now amounting to 430,000 tons, being an increase during the last 12 months of 160,000 tons. There are 97 furnaces in blast, and the total production last month was 206,000 tons, of which 56,000 tons were hematites. In face of such returns it may be asked how can we reconcile this vast increase in public stocks with the reports of improved trade? Are such advices entirely unfounded? At first sight it would appear so, but upon further investigating the present state of business it will be found that the export branch of the Middlesborough trade has decidedly improved. Shipments last month were much larger than those of the few previous months, and this has implanted a certain amount of confidence to the tone, and established a slightly better feeling. This, too, combined with the ruling low price, attracted the attention of speculative operators, who from a few heavy purchases have given still further strength to the tone, and have helped to cause some slight restoration in prices. The increase in stocks would indicate that many of such operators have been buying iron and placing it in public stores in the hope of better times; but how long they may have to hold it is at present impossible to foresee. Just now there are warrants in circulation in Glasgow and Middlesborough for rather more than 650,000 tons of pig-iron; and though we are ready to admit that some of that quantity is held by strong holders, yet a very large proportion of it might at any time be pressed upon the market, an event which would have a most depressing influence, and not only would the recent little advance be very soon swallowed up, but a still further reaction would inevitably follow. It is the invariable result of speculation in bad times, because stocks drift into the hands of weak holders, who have often operated more for a difference in market value when prompts fall due than for an investment; and, notwithstanding that such operators may sometimes hold to their stocks for a few weeks, it is very rarely for any longer period. The outside public, who practically know little or nothing about the actual state of the market, may be led to assume that the little stiffer tendency is a good sign, and is likely to produce a healthy influence upon trade in general; but to those who know the regular affect which must be produced from the ever growing stocks have no confidence that these various little spurts will prove more than a flash in the pan. It is a matter of comment that the little extra business doing in pigs does not extend to manufactured, and in Middlesborough especially, where the chief part of the extra business is doing in the raw material, a very dull and gloomy trade is being transacted in finished iron, and the low values entirely fail to stimulate the demand. In Staffordshire, however, there is a little more briskness in sheets, particularly for galvanising, and some fair exports have recently been effected, prices being shade stronger. However, with the exceptions to which we have referred, there is little or no change to be recorded, all other descriptions remaining quiet in demand, and steady as regards prices. The Glasgow Warrant Market opened on Monday with a good deal of disposition to buy, and various transactions were carried through between 41s. 6d. and 41s. 7 1/2d., and on Tuesday there was a good business done from 41s. 6 1/2d. to 41s. 8d. On Wednesday, the market having opened strong at 41s. 11d., the price receded to 41s. 9d., but yesterday the market was very strong and excited, a large business having been transacted between 42s. 1d. and 42s. 5d. cash. To-day the market is closed on account of the visit of the Iron and Steel Institute to Glasgow. The shipments last week were 8268 tons, against 9539 tons for the same week of last year, being a decrease of 1271 tons, and which makes the total shipments for the whole of this year 301,001 tons, against 37,476 tons for the same time of last year, and 442,833 tons for the similar period of 1883. There is one furnace less in blast, the present total being 89, but the public stock has been further increased by 1413 tons, and now amounts to 618,218 tons, against 616,805 tons last week. The imports of Middlesborough pig-iron into Grangemouth last week were 9510 tons, against 3980 tons for the same week of last year, or an increase of 5530 tons, and which makes a total increase for the whole of this year compared with last year of 76,122 tons. A firmer tone has characterised the Cleveland market, and during the last fortnight prices for No. 3 have advanced 6d. per ton, the present quotation being 32s. 3d. for sharp delivery, and 1 1/2d. to 3d. more for forward, and in some instances makers look for a still further advance. Business, however, is becoming rather restricted at the advanced value, while No. 4 is quoted at 31s. 3d. and forge iron at 33s. The public stock increased last week by

7362 tons, and the shipments during August were about 78,000 tons. The demand for manufactured remains very dull, at 41. 15s. for bars and plates, and at 41. 10s. for angles. At Wolverhampton the tone of the market is less depressed, and slightly more has been doing in both sheets and pigs. The principal business in sheets has been for Russia, India, and Australia, and the quotation has advanced 2s. 6d. per ton. Derbyshire pigs are quoted at 39s. to 40s., Northampton at 38s. to 39s., and Lincolnshire at 41s. 6d. The Birmingham market has been brisker, and prices for pigs have advanced. Galvanised sheets are in good demand at an advance of 5s., and manufactured iron generally is about 2s. 6d. higher.

## TIN.

At the commencement of the week a very dull and gloomy feeling characterised this market, and prices receded rapidly at the rate of about 10s. per ton per day until on Wednesday 90s. was accepted for cash parcels of foreign. This figure was again taken yesterday morning, but afterwards the tone strengthened and the price recovered 6s., whilst to-day there has been a very strong market, prices advancing from 91s. 5s. cash to 92s. The statistics that were published on the 31st ult. show that the stock in America last month increased from 1100 to 1370 tons. Not a very large increase, and the stock in that country is still rather limited; but at the same time there is now sufficient stock in America to prevent all the fluctuations of prices on the other side of the Atlantic making any particular impression upon the market here. During the time that there was so much scarcity of tin in America every little fluctuation in the price at New York had its immediate effect upon quotations here; but now our market is regulated more from prompt features immediately connected with it than from outside influences. The stock in America is still sufficiently light that, were there any increase in demand in that country or reduced supply, prices here would again be favourably influenced; but, for the time being, the effect is not likely to be great, or, at all events, not so great as during the last few months. It is, however, worthy of note that the principal supply to America last month was from this country and from Holland, the total from the two places being 710 tons, whilst the supplies from Straits to America were 300 tons, and from Australia to America 150 tons. The next point that calls for comment in the statistics are the deliveries in London and Holland, and although they show an improvement compared with the previous month, yet the reduced make of tin-plates is evidently causing an unfavourable influence upon the demand for this metal, and makes the comparisons with corresponding periods very unsatisfactory. The total deliveries last month were 1581 tons, against 1453 tons in July, 2405 tons in August last year, and 1948 tons in August, 1883. The comparison looks even more unfavourable, because it is drawn with a month last year when the deliveries were exceptionally good, and also at a time when prices were about 10% per ton lower than they are now, and which may have been the means of stimulating the demand at that time, whereas now there is a positive reason for the reduced deliveries. The shipments last month from Straits to London were 950 tons, and from Australia 750 tons. The total visible stock, including that in America, has increased to 13,836 tons, against 13,694 tons on the 31st July, and 13,236 tons on the 31st August, 1884. The total supplies for the 12 months ending 31st ult. were 25,984 tons, against 26,286 tons during the previous 12 months, or a decrease of 302 tons, whilst the deliveries for the same periods were 33,295 tons, against 35,708 tons, or a decrease of 2413 tons. The statistics cannot be considered satisfactory, and notwithstanding that there may be fluctuations in prices and temporary spurts effected, still it is possible that some reaction may be necessary in order to stimulate the demand, for the features which were temporally affecting prices in a favourable manner have passed away, and the returns show a positive falling off in actual business, besides a positive increase in supply over demand, features which, unless immediately changed, must necessarily lead to reduced values. Holders being tolerably strong, no sharp reaction perhaps may take place, but still, unless there be some change in the existing rate of supply and demand, prices will doubtless sooner or later recede to some extent.

QUICKSILVER remains steady, but very little business is passing.

The MINING SHARE MARKET has been rather more active for a few mines this week, but the low price of metals adversely affects market quotations generally, and most shares are lower in this respect than they were, particularly when pressed for sale; while on the other hand buying orders cannot always be executed in a few prominent mines at the lower quotations given. The mines chiefly dealt in have been Wheal Grenville, West Kitty, East Blue Hills, Prince Royal, Blue Hills, Prince of Wales, West Frances, Wheal Crebor, West Godolphin, New West Caradon, Killifreth, and a few others.

TIN has been dull, but leave off firmer. Since the 10th ult. no change has been made in the standard for ore in Cornwall. In shares very little business has been done. Blue Hills are quoted 1 1/2 to 1 1/2 old shares; Carn Brea, 3 to 3 1/2; Cook's Kitchen, 10 to 11; Dolcoath, 71 to 73; East Pool, 45 to 46; East Blue Hills, 3 1/2 to 3 1/2; the lode in the eastern end has improved to 30f. per fathom. Killifreth, 2 1/2 to 3; New Kitty, 10s. to 12s. 6d.; New Cook's Kitchen, 2 1/2 to 3; Phoenix, 1 1/2 to 1 1/2; Polberro, 2 to 2 1/2. Prince Royal shares have been fair demand, and advanced to 6s., 8s. On Tuesday a telegram was received that the East Blue Hills lode had been cut in the adit level. A special report of the mine by Captain Nance, who is well up in this district, will be found in another column. South Condurrow, 6 1/2 to 7; South Crofty, 5 to 5 1/2; South Frances, 9 1/2 to 9 3/4; Tincroft, 6 1/2 to 7; Trevaunance, 2 1/2 to 2 3/4; West Bassett, 1 1/2 to 2 1/2; Wheal Bassett, 6 1/2 to 7; West Frances, 7 1/2 to 8; West Godolphin, 1 1/2 to 1 3/4; West Kitty, 6 1/2 to 6 1/2; West Polberro,

to 10. D'Eresby, 1 to 1½; the lode going down under the shale, on hanging side, is worth about 2 tons of lead ore per fm.; in the heading, 1 ton. Leadhills, 2½ to 2½; Roman Gravels, 4 to 4½; Wendarle, 1 3-16 to 1 5-16. The general appearances of the mines belonging to this company are described as very encouraging. Craven Moor, 9s. to 11s.; Great Holoway, 1½ to 1½; Minera, 5 to 7; South Darren, 7s. to 9s.; Standard Lead, 1½ to 1½; Holywell District Lead, 2 to 1.

**FOREIGN MINES.**—Business in this has not been large, and there is very little variation in prices except in Chile Gold and Copiapo. Birdseye Creek are quoted 1½ to 1½; Bratsberg, 12s. to 14s.; Callao Bis, 3s. 6d. to 4s. 6d.; Cape Copper, 25s. to 27s.; Chile Gold, 6s. to 7s.; Colorado, 2½ to 2½; Columbian Gold, 9s. to 11s.; Copiapo rose to 3½, and leave off 2½ to 3; Frontino and Bolivia, 12s. 6d. to 15s.; La Plata, 4s. 6d. to 5s. 6d.; Montana, 2½ to 2½; Mysore, 1½ to 2½; Nundydroog, 8s. to 10s.; Orita, 1 to 1½; Oscar, 6s. to 8s.; Panulcillo, 2 to 2½; Richmond, 3½ to 4; St. John del Rey, 70 to 75; Santa Barbara, 1 to 1½; Schwab's Gully, 3½ to 3½; Tolima, A, 2½ to 3½; United Mexican, 2½ to 2½; Glenrock, 3s. to 4s.; New Emma, 6s. to 7s.; Potosi, 4s. to 6s.; Ruby, 6s. to 8s. Organos, 6s. to 8s.; the crushing for 14 days, amounting to 140 tons of quartz, has resulted in 140 ozs. of gold. The lode also, we are informed, has improved, and now worth 4 ozs. of gold per ton.

### Mining Notes.

THE tendency to improvement in general trade circles noted last week has distinctly gained in strength and volume. It is yet early to anticipate its further extension; but it is eminently satisfactory to note that the demand for manufactures and raw material is not confined to one trade; but may be observed as current at all, or nearly all, the large trade centres. At Glasgow, for instance, we found quite a hopeful view prevailing of the future course of the iron market, and certainly the impression left upon us, after interviews with some of the largest ironmasters, was that the feeling of anxiety which has prevailed so long has been supplanted by strong confidence in what the future may bring. At Manchester, Leeds, Bradford, Sheffield, and Birmingham the same movement in trade circles is observable, although the approach of the General Election might have been expected to exercise a restraining influence upon trade movements. It appears, however, as if the combined influence of cheap money, the absence of disturbing political elements at home and abroad, and the anticipation of good harvest results, has at last overpowered the prophets of depression with the result that the business of the country has, as we have said distinctly, improved, and still shows an upward inclination.

THE Alamillos Company yesterday (Friday) declared a dividend of 1s. 6d. per share, the Fortuna Company a dividend of 3s. 3d., and the Linares Lead Mining Company a dividend of 3s. 6d. per share, all free of income tax, and payable on the 19th inst.

PRESSURE on space compels us to hold over a reference to the proceedings at the Summer Session of the Iron and Steel Institute, at Glasgow, this week.

THERE is no doubt the scheme of reconstruction adopted by the shareholders of the Callao Bis Gold Mining Company, at their meeting yesterday, will meet with the approval of all business men. A sufficient amount of capital will be provided to thoroughly develop the lode, which they are now driving to reach. The report of Mr. W. Bell-Davies, recently issued, speaks well of the property.

A VERY favourable report has been received from the Organos Mine. The latest crushing (140 tons) yielded an average of 1 oz. of gold per ton. The lode is now improved, and reported worth 4 ozs. of gold per ton, and the manager writes that should it be cut equally rich at a deeper point a fine mine will soon be opened up. It is believed from the report of a gentleman lately arrived in England that the lode has been found at the point referred to even richer than was expected.

AT Devon Great Consols the 124 fm. level, at Watson's part of the mine, has improved both east and west, and is reported as yielding 2 tons of copper and mundic ores per fathom.

THE Mysore Gold Mining Company (Limited) have received a telegram from Captain Plummer, dated 4th September, giving the month's return of gold as follows:—136 tons rich quartz from bottom of the mine produced 350 ozs., and 19 tons of ore from 173 ft. level north produced 16 ozs. Total, 155 tons ore yielded 366 ozs. gold.

THE New Potosi Company (Limited) have received a telegram from the mines stating that 201 to 225 ozs. of gold have been remitted.

OWING to the present condition of the iron and coal trades the directors of Bolckow, Vaughan, and Co., consider it unadvisable to pay any interim dividend for the past half-year.

THE directors of the United Mexican Mining Company have received the following telegram:—The excess of returns over outlay on the mine of San Cayetano de la Ovejera for the week ending August 29 is \$3800. Have sent 2000l.

In the letter entitled "Discrepancy in Share Values," in the Journal of last week, "I cannot really understand why Grenvilles should not be worth 20l. per fathom," should read "20l. per share."

THE machinery, plant, and materials of the Cathedral Consols is to be sold by auction on September 15. Full particulars will be found in another column.

THE Venezuela-Panama Gold Mine Company (Limited) received cable advices on Wednesday reporting commencement of full work on termination of the drought (which lasted over three months), and a remittance of 3025 ozs. of gold from 2425 tons of quartz milled by 60 stamps in 27 days.

MR. W. Rickard, miners' agent, at the request of the Salford Humane Society, has reported upon cases of distinguished bravery displayed by men engaged in the exploration, and attempts to save life, after the Clifton Hall explosion, and recommended that special medals, which the society is having struck, should be given to the following:—Aaron Manley, pit carpenter; Peter Horsefield, pit carpenter; George Hindley, blacksmith; Thomas Worrall, underlooker; Charles Parkinson, fireman; and George Higson, fireman. Other rewards are to be given to explorers from a fund publicly subscribed for the purpose.

THE Ontario Silver Mining Company have declared their usual monthly dividend of 50 cents per share, payable on August 31. Total to date \$6,650,000.

THE latest accounts from the mines owned by the Ecton Company (Limited) are satisfactory. The discoveries made at the bottom of the Clayton Mine, directly the water was pumped out, continue to improve in quality and to increase in extent. The ore is said to be of very high grade.

THE Small Hopes Mining Company, Colorado, paid on August 15 a dividend of 20 cents a share, aggregating \$50,000. Total amount of dividends paid to date \$1,437,500, or \$5.57½ per share.

BASSER and Buller Consols Mine (Limited), formerly under the management of Captain Richard Pryor, of Trefula, is to be wound-up in the Stannaries Court, on the petition dated April 2, 1884, of John Tonkin, of Tuckmill, mining engineer, a creditor. —Wheat Buller Consols (Limited) is to be wound-up in the Stannaries Court, on the joint petition dated April, 1884, of John Tonkin, of Tuckmill, mining engineer, and James Holman, Pool, merchant and builder, respectively.

At the Violeta Gold Placer, in Spain, the permanent works for bringing in the river to effect sluicing operations are about completed, the water having commenced flowing through the large iron tube on the 1st instant. It is intended to commence sluicing for gold on a large scale from the upper part of the property without delay. The manager reports that there is no cholera in the Ponferrada district and that the health of the establishment is good.

THE operations carried on by the present management of Mid-Devon have been productive of results which certainly justify their continuance. The one stop which is being worked is yielding 6 tons of ore per week; and there is little doubt that if the 100 fm. were reached, and driving were vigorously taken in hand, other equally productive stopes would be available. But to effect this funds are required, and the last appeal is being made to the shareholders to take up the balance of 2000l. of preference shares. The directors have throughout supported the venture in manner which deserves every commendation, and if, as seems probable, the present company has to be wound up, the outside shareholders will alone be to blame. A full report of Monday's meeting appears in another column.

At the meeting of the Balkis Company, on Monday, the resolutions having for their effect the reconstruction of the company were carried; the one unanimously, the other with four dissentients out of a large meeting. It was stated that the subscription of 2s. per share will pay off the liabilities, and provide ample funds for the development of the property. Meanwhile the liquidation of the old company is to be carried out by Messrs. Maynard and Stoneham, who will enquire carefully into the inception and subsequent proceedings of the company. Colonel Malleson, the Chairman of the old company, courts the fullest investigation, and has promised to assist the liquidators in their enquiries. He has also promised to join the new board if, upon the report of the liquidators, he is requested to do so. There was pretty general consensus of opinion that there has been quite enough contentious literature circulated concerning the affairs of the company, and that, as Mr. Jeffreys expressed it, there should be a burial of the hatchet all round. A full report of the meeting appears in another part of the present issue.

WE have been favoured with a perusal of a private letter written by an English barrister, the author of a work on Australian travels, to a friend in the City, in which, speaking of a mine on the Charters Towers Gold Fields, Queensland, which until lately had not been heard of, he says:—"With John — as manager, a good winding plant, and 15 heads of stamps, I would guarantee a profit of 30,000l. a year." Speaking of mines on the field which have lately been put into joint stock companies with local capital and nominal 12. shares, he says:—"Bonny Dundee's are 27; No. 6 Queen 37; No. 2 Queen 37, and everything on gold. I fear want of water will pull the output down again, as most of the millowners must stop crushing soon if they get no rain. The Rainbow crushed over 2 ozs. to 1 ton last time. Mossman's company cleaned up 250 tons last Friday for over 5 ozs. 14 dwts. to 1 ton, and they have 600 tons more of the same now going through." With such results as these in our colonial possessions, with unquestionable titles from the Crown, it is certainly to be wondered at that people desiring a larger return for their money than they obtain by investing in Three per Cent. Consols should rush to unexplored regions where, if they should happen to get anything they find that they have no title to their property. There is no doubt that Australia, especially Queensland, and more especially the northern portion of that young colony is entitled to take, and, indeed, is taking a place in the front ranks so far as the precious metals are concerned.

AT Cook's Kitchen, Dunkin's lode, which has been intersected at the 234, has been driven into 5 ft. The lode is fully 5 ft. wide, and of the value of 20l. per fathom. As yet the south wall has not been cut. The produce, so far, has given 70 lbs. to the ton of stuff—very good work as the fact testifies. They are here getting the trip-plat ready under the 36s., and the sinking of the shaft will be resumed in the course of a few days. The agents hope to reach the south lode in 2 fathoms further sinking.

TO most members of the Mining Association and Instituto of Cornwall, Mulberry Mine, in Lanivet, was a complete surprise. Many had, probably, not heard of the mine before. Finding tin at surface, the whole earth has been excavated to a depth of at least 200 ft. The width and length of the workings are considerable, and the sight presented suggested the idea of a huge chasm. It is certainly a splendid example of excavation, and that the stuff here, which is said to give a produce of from 5 to 6 lbs. of tin only to the ton should be worked at a profit, staggered the mining fraternity, Captain Josiah Thomas expressing publicly his surprise. The mine, however, is in the hands of a Limited Liability Company, and it does not figure among the principal mines dealt in in the county.

IN respect of Trebartha, Lemarne, Mr. Watts sends us a circular to this effect: During the past fortnight a cost-and-pit has been sunk in the old men's working, 60 fms. east of Kempthorne's shaft, and 12 fms. north. In doing this a rich tin lode has been discovered free from arsenic or wolfram, but carrying a little sulphur-mundic. The old men's level has been found. We shall now proceed to find out whether we have discovered a new lode, or whether it is the eastern portion of the one we have been and are still working on.

LEVANT—the most flourishing of the St. Just mines—has vastly improved during the past four months, and we sincerely congratulate Captain "Dick" White on the result achieved. A profit was made of 1692l., and a dividend was agreed upon of 10s. per share, representing 1192l. At this rate the mine is paying 30 per cent. on the marketable value of the shares. By this we mean that the last shares in the market realised but 5l. per share. But what has the *Mining Journal* said during the past two or three weeks of the position outside investors are placed in not knowing what they should of St. Just mines? And has it not been argued that mining companies—in St. Just—should be regulated like private banks? Under these circumstances—for the first few months—Levant, for the value to be had for the shares, gives best interest.

THE Home Secretary has appointed a working collier as Mines Inspector for the county of Durham. The person selected is Mr. John Plummer, underviewer at Hetton Colliery, the property of Mr. Lindsay Woods.

At Carn Brea, on Monday, a youth, 18 years of age, of the name of Trengrove, who went underground for the first time, missed his footing in riding on the man-engine, and falling, was killed. At Dolcoath, on Tuesday, by the premature explosion of a hole, a man named Jackson was seriously injured, especially in respect to his eyes. It is thought his sight may be permanently endangered. At Wheal Agar, on Monday, a man named Nicholls was seized with a fit, in which he died.

By reports from the Wassa (Gold Coast) Mining Company (Limited) Mines, the month of June was a very trying period. Owing to the temporary flooding of the works, but little ore could be extricated; consequently the stampers were almost idle, producing only 577. 11s. value of gold. July, however, had commenced with better prospects; on the 6th the water had fallen back very much, though not from the best mineral ground until after the 20th; but the mills were being kept going by supply of ore, and a general improvement was taking place daily.

THE following telegram from the Tasmania Mine, dated June 26, appears in the Tasmanian *Mail* of July 4:—We have cleaned up from a crushing of 1862 tons. The amalgam from plates and ripples amounts to 2684 ozs., and from the boxes 2833 ozs. The 50-head battery will start crushing again to-night. The gold will be retorted in the morning.—June 27: The amalgam from crushing yielded 2381 ozs. of retorted gold, valued at 8928l. 15s., the average yield being a fraction under 1 oz. 5 dwts. 14 grs. to the ton. A dividend has been declared of 4s. per share, free of dividend tax, payable on Monday, and 300l. carried to the reserve fund. The dividend tax will amount to 225l. The previous report showed an average of nearly 2½ ozs. to the ton.

THE directors' report of the Wicklow Copper Mining Company for ten months ending 30th June has just been issued. In accordance with the resolution passed at the general meeting in October last, the accounts have been made up to the 30th June (covering a period of ten months from the last statement), and they are now submitted to the shareholders. After paying all charges there remains a net surplus of 1616l. 11s. 3d. on the working of the period, which amount has been carried to the credit of profit and loss. The Arklow manures, the report states, are steadily progressing in the favour of the agricultural community. A considerable outlay has been made on the ochre plant, and the company has been thereby enabled to produce a marketable ochre of uniform quality, in quantity, and at a reasonable cost. Already a couple of cargoes have been sent to England, and several parcels to Scotland, and negotiations are in progress with English and Scotch firms desirous of becoming agents for the company's ochre, and who are prepared to push the sale of it in preference to any other ochre of the same character.

OUR readers who know Mr. Walter, Ness, M.E., C.E., who lately for the Indian Government developed the Warrora coal fields in the Central Provinces, and who previously was one of the leaders of scientific mining in South Staffordshire, will be sorry to hear that that gentleman has recently been shipwrecked. Mr. Ness was going out upon important professional business to the Upper Congo, and was a passenger on board the British and African Steam Navigation Company's steamship Corsica, when, at a few minutes past four on the morning of July 23rd, she was wrecked off Grand Cess, about 350 miles from Sierra Leone. In the scantiest of clothing the passengers and crew, numbering about 72, got on shore after three hours' exposure in open boats, and during heavy rain and a considerable swell. The natives proved accomplished wreckers, and but for a Dutch store and its hospitable accommodation, it would have fared ill with the company and passengers of the Corsica during the nine days which elapsed before they were taken off, and enabled most of them—Mr. Ness amongst the rest—to proceed towards their destination. As the steamer went down within 20 minutes of her striking, hardly anything was saved. Mr. Ness could secure only his note-book and his instructions. Valuable scientific implements and books—some of which he can never replace—all went down. The temper of the natives was shown in the threats in which they indulged. As Mr. Ness and an outgoing Presbyterian missionary were together, a couple of stalwart fellows rushed out upon them from the bush. Flourishing a kind of cutlass-knife, one of them, in broken English, called out—"Now we've got you." Mr. Ness at once faced up prepared to seize the savage or his weapon, and with unmistakable determination in his eye said—"Get us for what?" The savages scarcely delighted with the prospect, were not long in regaining the bush.

SOUTH CARADON MINE (Limited).—It will be seen by an advertisement in another part of the Journal that the above mine is to be offered for sale as a going concern on the 9th inst., at the Auction Mart, Tokenhouse-yard. The following are a few interesting particulars referring to the property:—The sett is situated in the parish of St. Cleer, Cornwall, and working was commenced in 1837. There are several well known lodes running through its entire length. The mine was conducted on the Cost-book System for 36 years, during which time, upon an original outlay of 640l., was raised and sold 1,650,000l. worth of copper ore; 384,512l. was the amount paid in dividends, and 90,000l. in dues to the lords. The late shareholders were desirous of reconstituting the company for further development of the property; but under exceptional circumstances affecting their relations with the lords the sett was surrendered, and the present company was then formed, in May, 1883, the outgoing company receiving 16,125l. for machinery, &c. A portion of the property is called "Foredown," which is of considerable extent, and believed to be of great value. It contains at least six lodes, wholly undeveloped. The mine is in full working order, and is provided with machinery, stores, materials, and buildings of a complete and efficient character. From May, 1883, the returns of ore have amounted to 7986 tons 15 cwt., realising 29,316l. 6s. 9d. The ores are of great variety and high percentage, and should the standard for copper ores improve a large extent of ground could be worked—at present idle—with fair profits, and valuable discoveries would, no doubt, be made.

JOHN KNIGHT AND COMPANY (OF THE COOKLEY IRONWORKS), LIMITED.—Object, acquire the whole or any of the assets and liabilities of John Knight and Co., of Cookley Ironworks, in Staffordshire, and of the Brookmoor Iron and Tin-plate Works (Limited) upon such terms and conditions as may be arranged, and carry on the business of an ironmaster, miner, smelter, and manufacturer of sheet-iron, tray sheets, Canada plates, steel plates, galvanised iron, &c. Registered by Hollams, Son, and Coward, Mincing-lane, E.C. Capital 50,000l., divided into 5000 shares of 10l. each. The first subscribers (who take one share each) are—F.W. Knight, C.B., M.P., Wolverley House, Wolverley, Kidderminster; Edward Budd, Bond-court, Walbrook, E.C.; R. S. Casson, agent, Brierly Hill; William Hutchinson, Ettingshall-road, Wolverhampton; Henry Bennett, manager, Cookley House, Cookley, Kidderminster; J. E. Budd, Bond-court, Walbrook, E.C. The number of directors to be not less than three nor more than seven. The first directors are—Colonel Knight, C.B., M.P.; and Edward Budd, E. F. Budd, R. Smith Casson, W. Hutchinson, J. E. Budd, Esquires. Qualification, 10 shares. Remuneration to be decided at general meeting.

MESSRS. WILLIAM WILSON write from Glasgow on September 3rd:—The Scotch pig-iron warrant market continues firm, and at Middleborough also prices have a hardening tendency. Although this improved tone is attributable more to hope than to an increased demand, it is all the same, a welcome feature; and, as hope begats confidence, we shall have more readiness on the part of both merchants and investors to make engagements for the future.

## STOCK AND SHARE LIST.

## BRITISH DIVIDEND MINES.

Shares.	Paid.	Last wk.	Clos. pr.	Total divs.	Per sh.	Last pd.
12000 Bedford Unit., *c, Tavistock (£1 lib.)..	0 14 0 ..	34 3/4	34 3/4	0 1 .. 0 2 .. 0 ..	0 .. Nov. 1884	
6000 Carn Brea, c, Illogan	15 5 ..	33 1/2	34 3/4	52 11 8 .. 8 10 ..	0 .. Nov. 1884	
4000 Craggaun Bach, *c, Cardigan	5 0 ..	15 1/2	15 1/2	5 0 .. 5 0 ..	0 .. Nov. 1884	
12240 Devon Gt. Consols, c, a, Tavistock*	10 14 10 ..	21/2 .. 13/4	21/2 .. 11/8	7 0 .. 0 6 ..	0 .. Nov. 1882	
4700 Dolcoath, c, Camborne	0 14 10 ..	21/2 .. 13/4	21/2 .. 11/8	7 0 .. 0 6 ..	0 .. Dec. 1882	
5400 East Pool, c, Illogan	0 9 9 ..	46 .. 45	46 .. 44	4 0 .. 1 10 ..	0 .. July 1885	
12000 Great Holway, *c, Flintshire	5 0 ..	15 1/2	15 1/2	0 12 0 .. 0 7 ..	0 .. Sept. 1882	
15000 Great Laxey, *c, Isle of Man*	4 0 ..	10 9/4 ..	10 9/4 ..	30 12 0 .. 0 5 ..	0 .. Apr. 1885	
6400 Great Hurth, *c, Durham*	0 8 0 ..	53 1/2 .. 31/2	51 1/2 .. 31/2	5 1 0 .. 0 5 ..	0 .. Dec. 1884	
9830 Gunnislake (Clitters), c, *c	2 2 0 ..	34 .. 34	34 .. 34	0 19 9 .. 0 2 ..	0 .. Mar. 1882	
14000 Isle of Man, c, Isle of Man*	5 0 ..	0 ..	0 ..	0 .. 0 2 ..	0 .. May 1885	
6000 Killifirth, c, Chacewater	4 13 0 ..	14 .. 56	14 .. 56	83 7 .. 0 .. 0 2 ..	0 .. May 1885	
20000 Leadhills, c, Lanarkshire	6 0 ..	23 1/2 .. 21 1/2	23 1/2 .. 21 1/2	0 14 .. 6 .. 0 2 ..	0 .. Nov. 1883	
4000 Lightburne, *c, Cardiganshire	11 5 0 ..	0 ..	0 ..	0 2 0 .. 0 2 ..	0 .. Oct. 1884	
10000 Miners Mining Co., *c, Wrexham*	18 15 0 ..	0 ..	0 ..	61 15 0 .. 0 10 ..	0 .. June 1885	
20200 Mining Co. of Ireland, c, c, *c	5 0 ..	6 .. 5	6 .. 5	2 4 .. 0 .. 0 8 ..	0 .. Apr. 1885	
1829 North Hendre, c, Wales	7 0 ..	0 .. 15 1/2	7 0 .. 0 .. 15 1/2	12 1 .. 0 .. 0 2 ..	0 .. Aug. 1884	
3146 Ditto	2 10 0 ..	0 ..	0 ..	24 0 .. 0 .. 0 2 ..	0 .. Jan. 1881	
18000 Phoenix Gravel, *c, Linkinhorne*	1 7 5 ..	0 ..	0 ..	3 18 0 .. 0 4 ..	0 .. Nov. 1882	
12000 Roman Gravel, *c, Salop*	6 6 ..	13 1/2 .. 13 1/2	13 1/2 .. 13 1/2	2 11 3 .. 0 .. 0 2 ..	0 .. Nov. 1882	
6122 South Condurrow, *c, Camborne	7 10 0 ..	41/2 .. 4	41/2 .. 4	9 16 0 .. 0 1 .. 0 6 ..	0 .. Apr. 1885	
9000 South Darren, *c, Cardigan*	7 5 7 ..	7 .. 6 1/2	7 .. 6 1/2	12 1 .. 0 .. 0 2 ..	0 .. July 1885	
6000 Timcroft, c, Pool, Illogan*	1 10 0 ..	0 .. 8 1/2	7 0 .. 0 .. 8 1/2	6 0 .. 0 .. 0 2 ..	0 .. Aug. 1885	
6000 West Bassett, c, Illogan*	14 18 0 ..	7 .. 8 1/2	7 .. 8 1/2	51 3 .. 0 .. 0 2 ..	0 .. Aug. 1885	
6000 West Killy, t, St. Agnes	8 3 4 ..	2 .. 1 1/2	7 0 .. 0 .. 1 1/2	6 0 .. 0 .. 0 2 ..	0 .. Aug. 1885	
12000 Wheal Crebor, c, Tavistock	19 6 0 ..	19 1/2 .. 19 1/2	19 1/2 .. 19 1/2	4 18 0 .. 0 10 .. 0 10 ..	0 .. July 1885	
1024 Wheal Eliza Consols, t, St. Austell	2 4 0 ..	0 .. 1 .. 1/2	1 1 0 .. 0 .. 1 .. 1/2	2 5 0 .. 0 .. 0 7 ..	0 .. Aug. 1885	
6236 Wheal Grenville, t, Camborne	18 0 ..	0 ..	0 ..	59 10 0 .. 0 10 .. 0 10 ..	0 .. June 1884	
4285 Wheal Killy, t, St. Agnes*	5 12 0 ..	15 1/2 .. 15 1/2	15 1/2 .. 15 1/2	12 18 6 .. 0 .. 0 1 .. 6 ..	0 .. Jan. 1881	
3010 Wheal Pevor, t, Redruth*	1 12 0 ..	15 1/2 .. 15 1/2	15 1/2 .. 15 1/2	9 3 6 .. 0 .. 0 10 .. 0 10 ..	0 .. Aug. 1885	

## FOREIGN DIVIDEND MINES.

Shares.	Paid.	Last wk.	Clos. pr.	Total divs.	Per sh.	Last pd.
3 000 Alamillos, *c, Spain*	2 0 0 ..	15 1/2 .. 15 1/2	15 1/2 .. 15 1/2	2 17 11 .. 0 1 .. 3 ..	Mar. 1st 5	
16000 Almaden and Trito Consol., *c*	1 0 0 ..	5 1/2 .. 5 1/2	5 1/2 .. 5 1/2	6 3 .. 0 .. 1 0 ..	May 1876	
20000 Australian, c, South Australia	7 7 0 ..	2 1/2 .. 2 1/2	2 1/2 .. 2 1/2	1 11 0 .. 0 .. 2 0 ..	1 .. June 1884	
12000 Birdseye Creek, g, California*	4 0 0 ..	13 1/2 .. 13 1/2	13 1/2 .. 13 1/2	1 11 0 .. 0 .. 2 0 ..	June 1885	
30200 Blaafar, *c, Norway*	2 0 0 ..	3 1/2 .. 3 1/2	3 1/2 .. 3 1/2	0 4 1/2 .. 0 1 .. 2 1/2 ..	Mar. 1884	
32000 California, *c, Colorado	1 0 0 ..	4 1/2 .. 4 1/2	4 1/2 .. 4 1/2	0 4 1/2 .. 0 1 .. 2 1/2 ..	Mar. 1884	
50000 Colorado United, *c, South Africa	9 0 0 ..	27 1/2 .. 25	27 1/2 .. 25	61 17 6 .. 1 .. 0 0 ..	Mar. 1885	
50000 Copiapo, c, Chile* (6s shares)	5 0 0 ..	22 1/2 .. 25	22 1/2 .. 25	2 14 6 .. 0 .. 1 0 ..	May 1887	
70000 English & Australian, *c, t, c, Aust.	40 0 ..	70 .. 60	70 .. 60	5 12 6 .. 0 .. 5 0 ..	June 1885	
25000 Fortuna, t, Spain*	2 10 0 ..	0 ..	0 ..	3 19 4 .. 0 .. 3 4 ..	July 1885	
25000 Fronton, *c, Boliv., *c, Vic., pref. (20000 o.s.)	2 0 0 ..	0 ..	0 ..	3 2 0 .. 0 .. 1 0 ..	Mar. 1884	
40000 La Plata, *c, Boliv., *c, New Gran.*	2 0 0 ..	3 1/2 .. 3	3 1/2 .. 3	0 3 0 .. 0 .. 3 0 ..	Apr. 1882	
12000 La Trinidad, *c, Sonora, Mexico	1 0 0 ..	6 1/2 .. 6 1/2	6 1/2 .. 6 1/2	0 6 0 .. 0 .. 1 0 ..	Dec. 1882	
15000 Linares, t, Spain*	5 0 0 ..	5 1/2 .. 5 1/2	5 1/2 .. 5 1/2	0 10 0 .. 0 .. 7 0 ..	Aug. 1882	
20000 Maribella Iron Ore, *c, Spain	3 0 0 ..	4 1/2 .. 4 1/2	4 1/2 .. 4 1/2	0 10 0 .. 0 .. 7 0 ..	Aug. 1885	
13164 Mason & Barry, *c, Portugal	10 0 ..	23 1/2 .. 24	23 1/2 .. 24	0 10 0 .. 0 .. 8 0 ..	Mar. 1885	
50000 Montana, *c, U.S.A.	10 0 ..	8 1/2 .. 5 1/2	8 1/2 .. 5 1/2	0 10 0 .. 0 .. 8 0 ..	June 1882	
12000 New Hoover Hill, g, North Carolina	2 0 0 ..	2 1/2 .. 2 1/2	2 1/2 .. 2 1/2	0 0 8 .. 0 .. 0 8 ..	July 1884	
22500 Oxford, g, Nova Scotia	10 0 ..	7 .. 7	7 .. 7	0 0 3 .. 0 .. 0 3 ..	May 1885	
50000 Quebracho, Rail, Land, & Co., Venezuela	10 0 ..	3 1/2 .. 3	3 1/2 .. 3	0 1 0 .. 0 .. 3 0 ..	Mar. 1884	
25000 Pitangui, *c, Brazil (in £6000 £1 pd.)	4 0 ..	3 1/2 .. 3	3 1/2 .. 3	0 6 0 .. 0 .. 6 0 ..	per cent.	
14000 Pontigbal, *c, France	0 18 ..	5 1/2 .. 5 1/2	5 1/2 .. 5 1/2	2 2 0 .. 0 .. 2 0 ..	May 1884	
10200 Fox Phillip, *c, Clunes, *c, Elsinore (10s. sh.)	20 0 ..	5 1/2 .. 5 1/2	5 1/2 .. 5 1/2	30 3 1 .. 0 .. 11 .. 0 ..	Dec. 1883	
50000 Hare Fortune, *c, Argent. Republic	1 0 ..	—	1 0 ..	1 14 2 .. 0 .. 0 .. 10 ..	Feb. 1881	
34600 Richmond Consol., *c, Nevada?	5 0 ..	4 .. 4	5 .. 5	0 3 0 .. 0 .. 1 0 ..	July 1882	
50000 Rio Tinto, *c, Mortgage Bds., Huelva, 100	0 0 ..	101 .. 99	101 .. 99	101 .. 10 .. 5 percent.	Apr. 1884	
67000 Santa Barbara, *c, Brazil	10 0 ..	9 .. 9	9 .. 9	97 .. 97 .. 0 .. 16 .. 0 .. 9 ..	May 1885	
122000 Schwalbe Gold, *c, Kimberley	10 0 ..	13 1/2 .. 13 1/2	13 1/2 .. 13 1/2	0 12 9 .. 0 .. 1 .. 0 ..	May 1882	
30000 Scottish-Australian Mining Co., *c	10 0 ..	3 1/2 .. 3 1/2	3 1/2 .. 3 1/2	0 10 6 .. 0 .. 10 0 ..	Jan. 1885	
12500 Sierra Buttes, g, California*	0 10 ..	13 1/2 .. 13 1/2	13 1/2 .. 13 1/2	20 0 .. 0 .. 2 0 ..	Oct. 1884	
14562 Ditto, Plumas Eureka	2 0 0 ..	1 .. 1	2 0 0 ..	0 0 0 .. 0 .. 0 0 ..	Oct. 1884	
12370 Silver Queen Untd., *c, Sonora, Mex.	2 0 0 ..	2 1/2 .. 2 1/2	2 1/2 .. 2 1/2	0 0 0 .. 0 .. 0 0 ..	Oct. 1884	
163000 Tambachery, g, Wynnaid	70 0 ..	21/2 .. 21/2	21/2 .. 21/2	0 2 0 .. 0 .. 0 2 ..	Aug. 1885	
21000 Tharsis, *c, Spain (567300 issued)	2 2 0 ..	5 .. 5	5 .. 5	0 0 0 .. 0 .. 0 0 ..	Aug. 1882	
12000 Tolima, *c, Asuncion (A-shares), t	5 0 0 ..	3 1/2 .. 3	3 1/2 .. 3	0 0 0 .. 0 .. 0 0 ..	Aug. 1882	
14000 Toton, *c, Brazil (Asshares)	5 0 0 ..	2 1/2 .. 2 1/2	2 1/2 .. 2 1/2	0 0 0 .. 0 .. 0 0 ..	Aug. 1882	
14222 United Mexican, *c, Mexico	5 0 0 ..	2 1/2 .. 2 1/2	2 1/2 .. 2 1/2	0 7 6 .. 0 .. 2 6 ..	Aug. 1885	
15000 Western Andes, t, Colombia	1 0 0 ..	4/3 .. 3/6	4/3 .. 3/6	0 13 12 .. 0 .. 0 2 ..	Feb. 1881	
18000 Yorke Pen., c, South Aust. Prof. t.	10 0 ..	—	4 2 0 ..	0 0 8 .. 0 0 8 ..	Aug. 1884	
18000 Yorke Pen., c, South Aust. Prof. t.	10 0 ..	—	4 2 0 ..	0 0 8 .. 0 0 8 ..	Aug. 1882	
5 Have made calls since last dividend was paid.	1 0 0 ..	—	0 3 0 ..	0 3 0 .. 0 3 0 ..	May 1882	

§ Have made calls since last dividend was paid.

## NON-DIVIDEND BRITISH MINES.

Shares.	Paid.	Last wk.	Clos. pr.	Total divs.	Per sh.	Last pd.

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## THE GOLD AND DIAMOND FIELDS OF SOUTH AFRICA—No. XVIII.

BY THOMAS COLLINGWOOD KITTO, M.E.

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The dangers and hardships frequently experienced by pioneer diggers are very great indeed. They have to combat with the various diseases incidental to the locality and climate, often without water, and with very little food. Venomous reptiles lurk in the grass, and wild beast hover around their camp by night. Hordes of warlike savages surround them at all times, ready to kill them for a sake of a tin can, a roll of tobacco, a pair of pants, or a threadbare blanket. This description applies to the pioneers of almost every great gold diggings which I have known, and it is universally acknowledged that the diamond diggings were no exception to the rule. I am sure the majority of your readers will say the pioneer digger is justly entitled to all the discoveries he may make, and in Australia and California he got it, but not so in Dutoitspan and Bultfontein, South Africa. The digger was left in quiet possession so long as it was all hard work and no diamonds, but no sooner had he "struck it" (diamonds) than a mine was sprung upon him by having his rights disputed. Of course the diggers resisted all they could, but eventually capital triumphed over justice—as it so frequently does—and the weakest went to the wall. There was not a digger whom I met at Dutoitspan who did not tell me that the diggers had been cruelly deprived of their rights. I remember the same little game being once tried in Australia, but the diggers there adopted a very summary mode with the sharks which followed in their wake, which was perfectly successful, and they were ever after left in undisputed possession of their just rights. I simply relate the facts as they were told me by the diggers of Dutoitspan and Bultfontein without prejudice. I went more fully into the matter in my report to the Government, and as the statements were not questioned at the time I presume they were correct. At the time I inspected those mines their organisation was very indifferent indeed. The Bultfontein Mine, taken in the aggregate, is a good property, and if properly conducted cannot fail to pay dividends for a very long time. I found the same complaints here as at Kimberley with regard to the traffic in stolen diamonds; but I was informed that the complaints were all moonshine, as everybody made it a rule to get all the diamonds they could, without being too particular as to where they came from. I was also assured that those who proclaimed the loudest and looked the most innocent were supposed to be the chief centres of the diamond thieves' organisation, and my own observations led me to the same conclusion.

After leaving Bultfontein I inspected the Old De Beer's Mine. The greatest length of this property is also from east to west, about 1130 ft., and its greatest breadth from north to south is about 670 ft. The north side of the De Beer's formation at the time of my inspection was much richer than any other portion, and would compare favourably with the celebrated Kimberley Mine; but most of the De Beer's Mine was covered with floating reef (intrusive rock), and consequently it was only the north side of the formation which paid, but that paid well from the outset, and has continued to do so up to the present. It is generally considered that most of the companies in this formation have been badly mismanaged, but those that have been properly managed have paid well. With regard to the traffic in stolen diamonds the same remarks apply to the De Beer's as to all the other mines.

In consequence of the great success of the celebrated Kimberley Mine all kinds of trash has been brought forward as genuine. Taylor's Kopje caused a big stir, and very large sums of money changed hands over it, but I do not believe that a single diamond was ever found there unless it was first placed there by some interested person. Salt peter pan was another noisy nothing; and the celebrated Otto's Kopje—celebrated only on account of its worthlessness—was a dead failure. In consequence of the favourable report of Mr. Kilgour and another gentleman on this property I bought a few shares in it, but was fortunate enough to clear out in time without either profit or loss. There are a few diamonds in this formation, but it is not at all likely that it can ever pay. Kamfersdam has the appearance of being a true mine; it is about the size of Kimberley, and was evidently a mud volcano, but the reports as to its value are so conflicting that very little reliance can be placed on them. There can be no doubt that some of the proprietors had faith in it, as they spent large sums of money in developing it, and erecting splendid machinery, but as it has come to a standstill the evidences are against it. There has been a number of other trashy things over which money has changed hands, but they are not worth mentioning.

The Frankfort Mine, in which so many "experienced Kimberley diamond diggers" bought claims, and which caused very great excitement at the time, ought to be of interest to English investors, inasmuch as one-quarter of it was within an acre of being sold to an English company for the sum of 450,000/-; but, fortunately for English investors, the sale of the concern was contingent on a favourable report from Thomas Collingwood Kitto. I inspected the property, and found parties of duly-qualified surveyors busily marking out claims, and parties from Kimberley waiting to purchase them. Some of the surveyors said, loud enough for me to hear, that in pulling along the chain they had turned up several diamonds, which they produced. Several other claimholders who were working with hand-machines said they were finding diamonds plentifully, and were highly satisfied with their purchase. The proprietor of the farm, who had sold so many claims, was having a very large shaft sunk, a steam-engine erected, and big dams made for the storage of water. He showed me some beautiful parcels of diamonds, and felt quite sure that from the prospects of the Frankfort Mine he should be the richest man in the world. But he was magnanimous, and was anxious to restore confidence in the diamond fields by offering a portion of his property to the British public for 450,000/- But said he, "We have plenty, old fellow; we don't want to keep it all to ourselves, and it shall be a good thing for you." How good? said I. "Well, I was thinking about 10,000/- in cash and 20,000/- in free shares," said he. "No," said I, "it will not do." "Well," said he, "we must have a favourable report from you, so name your price." I went over the property, and decided it was one of the most shameful swindles ever attempted on the British or any other public, and I lost no time in placing the matter clearly before the readers of the *Mining Journal*. They tried every conceivable move to get a favourable report from me—over and over again they tried. But I am thankful indeed to say that the villainous offer had no temptations for me. But because I exposed this matter with one or two other questionable concerns the Press of South Africa tried to silence me by writing a lot of scurrilous articles in which there was never a shadow of truth, and scores of company promoters and Brummagem mining authorities have said to me—"Kitto, you ought to have pocketed the coin, and let the thing go through." How did the public act in the matter? Well, a few of my personal friends thanked me. A few others said—"If we had a few more men like Kitto to give us the unvarnished truth mining would soon be placed on a secure footing." But those mythological company promoters who control all mining meetings with their hundreds of thousands of promoters' shares, which never cost them a penny, and who never risk a farthing of their own. Those individuals said—"That Kitto has again spoiled our little game;

but we will be even with him yet." My sole object in referring to these matters is the interest of *bona fide* mining. I will undertake to say that the evidence which shall be placed before the Royal Commission, which has been appointed to enquire into the depression of trade, with regard to the rascallities perpetrated under the head of mining, will show that those rascallities has had more to do with the present depression than the public are aware of.

## RECENT ABANDONED MINES.

## CATHEDRAL CONSOLS.

CONTRIBUTED BY MR. EDWARD ASHMEAD, THE SECRETARY.

This mine, originally known as Wheal Cathedral, is in the parish of Gwennap, Cornwall. Prior to its later workings, 13 years from 1872 to July, 1885, it was prosecuted by two or more companies of adventurers extending from 1820 to 1856. The mines immediately surrounding it are Grambler and St. Aubyn on the north; Pennance and Ting-Tang on the south; Wheal Trefusis on the west, and West Damsel and West Jewell on the east. The sett comprises ground about 400 fathoms from north to south, and a like extent east and west. The formation is in granite, and close to the southern margin the killas comes in. The lodes which traverse the sett are—Old Wheal Damsel, which at one period of working gave a profit of 200,000/- to its owners. West Damsel, another well-known profitable mine, whose best copper ground was only 100 fathoms east of the Cathedral sett, while North Wheal Basset and South Wheal Basset are in a direct run westward. The late Capt. Joseph Jennings, of Tresavean Mine, was the agent of Cathedral during its first workings, and in a report bearing date January, 1856, a copy of which is in the hands of the present writer, he strongly recommends the mine as comprising one of the best pieces of unwrought mineral ground in the neighbourhood.

The productiveness of the neighbourhood needs no comment. The principal work done up to the time he reported was as follows:—"The adventurers sunk a sump-shaft perpendicular to the 60 fm. level under the adit, intersected the south lode, and opened on it east and west about 30 fathoms; here the lode averaged 4 to 5 ft. wide, composed of fluor-spar and flookan, impregnated with ore. A winze was sunk from the 60 to the 70 fm. level on this lode, and opened upon in the 70 for about 20 fms.; here the lode averaged for about 11 ft. wide west and 6 ft. wide east, composed of light spar, flookan, and cann, mixed with black and grey ore. By the advice of several mine agents the adventurers put up a large engine for the purpose of sinking this sump-shaft 30 fathoms deeper, but for want of funds were obliged to abandon the undertaking."

It is necessary to quote the above extract for this reason. The shareholders who have just ceased working sent out a cross-cut from the north lode, on which they mainly worked, 84 fathoms under adit, and 14 fathoms lower than the workings on the south lode, but at a point about 25 fathoms east of where Capt. Jennings reported so well of it in the 70, and in July this year when there was but 15 fathoms further to drive in the 84 end to come under the point referred to in the 70, and where Capt. Jennings left off, the work of the mine was brought to a standstill. A little more outlay and perseverance and a profitable lode might in all probability have been the result. The late workings have not solved Capt. Jennings' anticipations, but they have cleared the way, and made it easier for those who may take up the mine hereafter.

The writer has also a copy of a report made in 1856, confirming that of Captain Jennings. It bears the signatures of James Pope, of Wheal Basset; John Daw, of Carn Brea Mine; Thomas Glastonbury, of North Basset; and John Michell, of Grambler Mine; and accompanies a prospectus of the same date. The prospectus quaintly states:—"The report of the experienced mine agents which accompanies this prospectus, known as men of caution, never hasty, or over sanguine in their judgments, sufficiently guarantees that the ground comprised in this sett is well worthy of a vigorous and *bona fide* trial, and should be sufficient, without any remarks from the promoters, for again confidentially bringing this adventure before the public without any disguise of a new name, or any other reliance than upon the merits of the ground itself." The term "promoter" was in use even then, but he was not the rapacious individual of later date, as it is stated—"A sum of 200/- is appropriated to the promoters of this undertaking as an equivalent for their services in getting up the mine and for the cost of the grants, and it is believed that this small amount of remuneration will not be thought excessive."

What was done by the company of 1856 there is no record to show. But the sett had been some period in abeyance when in 1872 it was taken in hand by the late Mr. Matthew Greene, and worked by a Limited company in 15,000 shares of 30s. each, but they were not all issued. This company did no work on the old mine or south lode, but opened from surface on a new or north lode, of which very favourable opinions were entertained. A bunch of ore was met with at a shallow level, and about 2000/- worth sold. The want of a suitable engine for pumping, the necessary capital, and the decease of Mr. Greene in 1877, the company got into debt, and was wound-up in the Stannaries' Court. The mine and plant then passed by purchase from the Court into the hands of Mr. Laby, a large shareholder in the Limited company, and was by him transferred without profit, for the purchase-money only, to a second Limited company, the New Cathedral Copper and Tin Mining Company (Limited). This company, under the chairmanship of Mr. Laby, erected a 60-in. cylinder pumping-engine, now upon the mine, converting the Robey's engine hitherto in use for drawing purposes, and spent beyond the cost of purchase, in mining work, a sum of over 4000/- On the 20th of January, 1881, a very sad accident occurred. The men working in the 52 end west in blasting broke into a cross-cut, the existence of which was unknown, causing an influx of water which speedily filled the mine. This disaster caused the loss of eight lives. The enquiry that followed exonerated the officers from all blame, the oldest miners, and those born in the district, being unaware of any old workings going from the old to the north lode, the old mine lode at this depth being more than 100 fms. distant from the north lode. The result of the accident was that the old mine workings and the new were put into communication. The expense and delay caused by this accident led to the company being again dissolved, and re-organised a Cost-book Company in 6000 shares, Mr. Laby becoming again, as in the former company, its Chairman and largest shareholder. Upon the engine being restarted the two lodes were drained simultaneously. The engine-shaft was again sunk on the north lode from the 64 to an 84 fm. level, 10 fms. lower than the workings on the south lode; a cross-cut was put out 46 fms., and an intersection effected. The south lode was found to be 4 to 6 ft. wide, of more than ordinary promise, producing rich stones of grey and yellow copper ore, and improving as driven on—a lode very like the other rich mines around. It is much to be regretted that this lode was not prosecuted a little further, or until it came under Capt. Jennings's working in the 70. The present company also drove their 50 fm. level east as a pioneer level, a distance of 88 fms. towards West Damsel, this level producing stones of good copper and also some tin. A small lot of the latter ore was about a year ago dressed and sold. The continuance of this

level would be a very good speculation, as West Damsel made its riches near Cathedral boundary. In addition to the lodes referred to, a very promising one within the sett is that known as Rawson's tin lode, a little east of the engine-shaft. Very little work has been done here of late; but the company now suspended about 3 years ago put some men on it, and found the lode composed of quartz, peach, and splendid stones of tin. Extensive workings made by the ancients were found in the roof of the adit level on this lode. This lode (and many others which traverse the sett) is in reserve for those who may take the mine in hand again. It would be worth reworking the mine to prove this tin lode by a cross-cut north from the 84 fm. level.

Cathedral Mine has offered many very fine cabinet specimens for collectors. The museum at Exeter has a very good collection from this mine of both tin and copper. There are no accounts existing to show the money expended by the old companies under Captain Jennings, on the south lode, but on the north lode on which the engine-shaft is sunk it would appear that since 1872 about 30,000/- has been spent in labour, plant, and materials; of this the Cost-book Company now giving up have contributed over 12,000/- in the last four years and a half. No shareholders have deserved success more than those of the Cathedral Mine Company, but "Tis not in mortals to command success" within any given time, as all engaged in mining know, or to control the exigencies of the time. And when, owing to the demands in the shape of calls upon their resources, some holders were compelled to relinquish, others, who would fain have continued, were obliged to give in. Captain Stephen Davey has been the active and energetic agent of the mine for the last three companies, and deservedly had the confidence and respect of the shareholders.

Within the limits of the sett is the well-known Gwennap Pit, which no tourist in the neighbourhood neglects to visit. This singular excavation has been used for open-air preaching for more than a century. It is sometimes called "Wesley's Cathedral," and it is supposed from this that Cathedral Mine took its name.

## TREATMENT OF DRY AND BASE SILVER ORE.

(Continued from Page 983.)

Lixivation with Hyposulphite Solutions.—The lixiviation process with hyposulphite solutions is now entering into serious competition with amalgamation. It was first introduced in the United States in 1874, at Melrose, Cal., by the late Mr. G. Knestel. Subsequently lixiviation works were erected at Galena, Nev., at Monitor, Cal., and at the Martin White Mill, Nev. All these establishments were on a small scale, and their existence was of short duration. The first successful introduction, on a large scale, was at the Silver King Mill, Arizona, by Mr. O. Hofmann, in 1880. The next mill with lixiviation plant was the Bertrand, built at Geddes, Nev., in 1882, followed by the Mount Cory Mill, Nevada, in 1883. So much interest is manifested in the lixiviation process, and such radical improvements have recently been made in it by E. H. Russell, that a brief discussion of the subject will not be out of place. Those who wish more detailed information I will have to refer to a paper which is to appear in the transactions of the American Institute of Mining Engineers. In the lixiviation of silver ores by means of a hyposulphite solution, two difficulties have heretofore been met with, which have rendered the process inapplicable in many cases—(1) The difficulty of producing bullion free from lead; (2) the necessity of a very perfect chloridising roasting, since the hyposulphite solution acts only imperfectly upon metallic silver, and such of its combinations which have not been transformed into the chloride by the roasting process. In the amalgamation of roasted silver ores, bullion almost entirely free from lead is produced, if certain precautions are taken, even in case the ore contains a large percentage of lead minerals. If native silver occurs in the ore which is not entirely converted into chloride by roasting, this silver amalgamates readily. Silver compounds, too, which are not converted into chloride, are decomposed to a certain extent, and the silver is amalgamated, especially if the roasted ore contains soluble copper salts. Hence a larger percentage of silver is, in many cases, extracted by amalgamation than that shown to be present as chloride, according to the customary chlorination tests. Mr. Russell's improvements in lixiviation consist:

1.—In a practical and cheap method of precipitating the lead by itself from the hyposulphite solution.

2.—In the application of a solution containing a double salt of sodic and cuprous hyposulphite, which reacts upon and dissolves silver compounds not soluble in sodium or calcium hyposulphite. He calls this solution the "extra-solution," to distinguish it from the ordinary sodium hyposulphite solution without copper.

Separation of Lead from a Hyposulphite Solution Containing Copper and Silver.—Mr. Russell discovered that lead can be completely precipitated from a hyposulphite solution by sodium carbonate as lead carbonate, while silver and copper remain in solution. In working on a large scale the commercial soda-ash is used for this purpose. An extra series of precipitating tanks has to be provided. The lead carbonate settles quickly, and the clear solution is decanted into the silver precipitating tanks where copper and silver are precipitated by sodium sulphide. The lead carbonate is collected and sold to smelting works.

The Treatment of the Ore by the Extra Solution.—If to a solution of sodium hyposulphite copper sulphate is added in the proportion of two of the former to one of the latter, the reagents completely decompose each other, a double salt of sodic and cuprous hyposulphite being formed. In case concentrated solutions have been used this double salt is precipitated as a canary-yellow powder. It is not easily soluble in water, but dissolves readily in a sodium hyposulphite solution of 2 per cent. concentration. A solution of this double salt exerts a most energetic decomposing and dissolving action upon metallic silver, silver sulphide, and combinations of silver with antimony and arsenic. If a charge of roasted ore is first treated with an ordinary hyposulphite solution to extract the silver chloride, and subsequently with extra solution, an additional amount of silver is extracted, which by using the old method only would have been lost in the tailings. Experiments carried out at the Ontario Mill, Utah, show with well chloridised ores a difference of 4½ per cent. in favour of Russell's process, and from 2 to 3 per cent. more silver extracted than by amalgamation. But with ores of low chlorination the difference may arise above 30 per cent. in favour of the extra solution. In applying the extra solution it is used for several charges in succession before the silver is precipitated from it, together with copper, by sodium sulphide.

Improved Process for Treating the Sulphides.—It cannot be denied that the handling of the sulphides is a weak point in the lixiviation process. In roasting such rich products a mechanical loss, and a loss in silver by volatilisation, cannot be avoided. The by-product of rich copper matte obtained in melting the roasted sulphides is also undesirable. The following process is designed to obviate existing difficulties. The sulphides are dissolved without previous drying in sulphuric acid, with addition of nitric acid. After complete decomposition has taken place the silver is precipitated from the solution by metallic copper. From the copper solution copper sulphate is obtained by evaporation and crystallisation. A great saving in nitre can be effected if the nitric oxide escaping in this process is according to well-known chemical

reaction, reconverted into nitric and nitrous acid, which are absorbed by sulphuric acid. This nitrated acid is then used for oxidising fresh charges of sulphides.

**Amalgamation and Lixiviation by Russell's Process Compared.**—Without entering into detailed calculations, I will only point out the principal items which are in favour of lixiviation, as compared with amalgamation.

1.—In amalgamation the fineness to which ore has to be crushed is determined by the capacity of the settler to work off coarse sands without material loss of quicksilver. It is not practicable to use a coarser screen than No. 30, if the crushing is done by stamps. This is almost equivalent to sifting through a No. 40 revolving screen, if the crushing is done by rolls. In lixiviation pulverising as coarse as possible is desirable. The limit of coarseness is determined by the roasting process. It depends upon the character of the ore, and principally upon the manner in which the silver-bearing minerals are disseminated in the gangue.

2.—The original cost of the lixiviation plant is much lower than that of pans and settlers. A further saving is effected by a reduction in size of the engines and boilers, the power required for pumping, solutions, &c., being mere nominal.

3.—In amalgamation the pans and settlers consume not less than 1 1/3rd horse-power per 24 hours for each ton of ore.

4.—In large mills the quantity of quicksilver in rotation represents a capital of from \$30,000 to \$40,000, while the stock of chemicals required for lixiviation does not cost more than one-tenth of this amount.

5.—With Russell's improvements the percentage of silver extracted is much higher than by amalgamation.

6.—Lixiviation by Russell's process requires a less careful chloridising roasting. That in some cases salt may be entirely dispensed with is indicated by experiments made at the Ontario Mill.

7.—The value of the lost quicksilver, and cost in wear and tear of the pans and settlers, amounts to more than that of the chemicals consumed in the lixiviation process.

8.—The lixiviation process permits the extraction of copper and lead as valuable by-products.

9.—The sulphides from the lixiviation process can be much easier converted into fine bars than the bullion obtained in amalgamation.

10.—Amalgamation is invariably injurious to the labourer's health.

In view of these advantages, coupled with a reduction of the cost in crushing by using rolls in place of stamps, we stand before a revolution in the reduction of silver ores, to which this process can be applied, rarely equalled in the history of metallurgy. It is fair to presume that in lixiviation mills of large capacity, with rolls, the cost of producing silver will be lessened nearly one-half, as compared with the present system of stamps and amalgamation, and in some cases the saving will be even greater.

## American Mining Notes.

(FROM OUR OWN CORRESPONDENT.)

NEW YORK, AUGUST 20.

During my absence from the busy metropolis the general business situation has undergone some change. Wall-street, in which months the "bulls" with difficulty kept the "bears" at bay, has witnessed one of its periodical sensations, and the public is asked to believe to-day in an enhancement in the value of properties which a few years since were cried down either as worthless or as fast drifting in that direction. It takes some courage when nothing but the wonderful future is spoken of to assert that the present outlook does not warrant any extravagant expectations for the future. A boor manipulated by great capitalists and speculators is one thing, and the betterment in the conditions of general business is quite another. Our daily Press, it is sad to say, seems largely prompted to overdraw, either by the love of the sensational or by more sordid motives, and it is only when the opinions of our business men are privately obtained that the true picture is revealed. Such as it has been unfolded to your correspondent it shows a brighter aspect unquestionably, but as yet the signs of improvement are scattered only, and are generally faint. Possibly the long period of waiting to discover them has bred a joy at their coming which leads to overestimation. It is certain that the speculative spirit has been aroused, and that in itself augurs well for the future—provided that the matter is not overdrawn. As yet the general public has only taken a very insignificant share in the movement, and until it does no long well-sustained advance can be reached. Mining, of course, will be the last to benefit from the revival, such as it is.

Iron has not yet moved perceptibly, though in some branches sellers do not as abjectly and as promptly make concessions. Coal continues distressingly dull. Lead, held at 4 1/2 c. artificially by a speculator, who has as yet not sold any of his surplus, because buyers are well supplied. The only effect which this Corwith movement is likely to have is to set every Western miner to driving his mine as fast as possible, and thus to counteract a decline in the production which might otherwise have taken place. Copper is quiet at 11 1/2 c. for Lake, the negotiations between the Calumet and Hecla not having come to an issue as yet. The zinc combination in Europe is looked at with some anxiety here. We have learned by experience that this generally means that an unsaleable surplus is crowded into this market if there is any chance for it.

Our steel-rail manufacturers have imitated their European *confrères* in forming a combination for the year 1886, by an agreement to restrict production. The allotment, I understand, is as follows, on the basis that the market will take about 775,000 tons during that year:—

Edgar Thomson (Carnegie) . . . . .	Tons 900,000
North Chicago Rolling Mill Company . . . . .	90,000
Bethlehem Iron Company . . . . .	90,000
Pennsylvania Steel Company . . . . .	90,000
Joliet Steel Company . . . . .	75,000
Cambria Iron Company . . . . .	75,000
Lochawanna Coal and Iron Company . . . . .	75,000
Scranton Steel Company . . . . .	55,000
Cleveland Rolling Mill Company . . . . .	45,000
Union Steel Company . . . . .	45,000
Albany and Kensselaer Iron and Steel Company . . . . .	30,000
Worcester Steel Company . . . . .	15,000
Total . . . . .	775,000

It remains to be seen how this scheme will work. Some of the mills have been shabbily treated; others have obtained more than was due to them. There are, therefore, in the allotment all the elements of strife should circumstances favour fighting, which, it is sincerely hoped, they will not do. Stockholders and bond-holders of the Colorado Coal and Iron Company, of which there are many in England, may perhaps be surprised that their company is not one of the number of those in this combination. The fact is, that so far as the Bessemer works of that concern is concerned it is hopelessly out of the race, and even if the sanguine hope of the railmakers that they will be able to command \$30 at the Eastern Mill in 1886 is realized, the Colorado Company will be unable to compete by many dollars a ton. The present and

the future of that company depends upon the demand in the Far West for its coal and coke, and upon the freight arrangements made. The Bessemer plant is a dead investment.

Through the courtesy of Mr. Albert Williams, jun., chief of the Bureau of Technology of the United States Geological Survey, I have been given access to advance sheets of the review of the copper industry of this country in 1883 and 1884, by Mr. C. Kirchhoff, jun. The report was completed in February of this year, and through the delay in its publication, in spite of the energetic efforts of Mr. Williams, much of its contents has lost its freshness. Your correspondent, however, believes that some of the data may still possess some interest to English readers. Mr. Kirchhoff has taken up the great question of the capacity of the different mines to outlive low prices. So far as the Lake Superior mines are concerned, he states that it is a comparatively easy matter to arrive at the proportion of the yield in 1883 and 1884, which has resulted in a profit to the mines. Out of the total product in 1883 of 59,702,404 lbs., about 49,500,000 lbs., or 83 per cent., were produced at figures below the market rates, while in 1884 the figures may be placed at 69,250,000 lbs. and 54,000,000 lbs. respectively, or nearly 78 per cent., assuming the average price for the year to have been 11 1/2 c., which is rather liberal.

It is stated by the same authority that out of the total product of Montana certainly a very large percentage yielded a profit, and that of the whole of the state of Arizona not less than 90 per cent. was placed on the market in 1884 at remunerative rates. "It is not held, however, that these figures represent the maximum figure, because there are a number of enterprises, great and small, concerning which no data have been available. Viewing it in different light, it may be said that out of the total output in the United States in 1884, fully 70 per cent. can be put on the market at 11 1/2 cents for Lake Superior copper, and 10 1/2 cents for other kinds. These prices are very low as an average of the price realised in 1884." It may be added, however, that thus far they have been probably slightly above the average for 1885, and it is not surprising, therefore, that even mines which can prefer to keep their reserves intact rather than to exhaust them in trying to secure a new dollar for an old one. Mr. Kirchhoff reports as follows the total copper production in the United States, by States and Territories, during the years 1882, 1883, and 1884, during which the figures were collected by him.

### Total Copper Production in the United States in 1882, 1883, and 1884.

Source.	1882.	1883.	1884.
Lake Superior . . . . .	56,982,765	59,702,404	69,250,000
Arizona . . . . .	17,984,415	23,874,963	26,734,345
Montana . . . . .	9,058,284	24,604,346	40,612,783
New Mexico . . . . .	869,498	823,511	59,450
California . . . . .	826,695	1,600,862	876,166
Colorado . . . . .	1,494,000	1,152,652	2,013,125
Utah . . . . .	605,880	341,885	265,526
Wyoming . . . . .	100,000	962,468	—
Nevada . . . . .	350,000	288,077	100,000
Idaho . . . . .	—	—	46,667
Missouri . . . . .	294,695	260,306	230,000
Maine and New Hampshire . . . . .	290,000	212,124	249,018
Vermont . . . . .	1,265,000	400,000	655,405
Southern States . . . . .	400,000	395,175	317,711
Middle States . . . . .	—	64,400	2,114
Desilverisers, &c. . . . .	125,000	782,880	950,870
Total domestic copper . . . . .	90,646,232	115,526,053	142,363,180
From imported pyrites . . . . .	1,000,000	1,625,742	2,858,754

Total, including copper from imported pyrites 91,646,232 . . . 117,151,795 . . . 145,221,934

He adds that out of the whole domestic product of 1883 of 115,526,053 lbs. of copper, no less than 92,500,000 lbs. were converted into ingot copper in the United States, and that in 1884 the quantity was 108,250,000 lbs. out of a total product of 142,363,180 lbs., a decline in the percentage of the total treated in home works being due to larger shipments of ore and furnace materials to Europe. Mr. Kirchhoff reviews the development of the industry in the different districts, goes over the course of the markets in 1883 and 1884, and the status of copper mining in the leading producing countries in the world.

## Law Intelligence.

BIRMINGHAM ASSIZES.—AUGUST 28-29.

(Before Mr. Justice DAY.)

DOWNES V. THE FALCON ENGINE-WORKS.

This action, in which Mr. John Downes, Milk Street, Birmingham, sought to recover from the proprietors of the Falcon Engine-Works (Limited), of Loughborough and London, 20,000l. damages, for alleged infringement of plaintiff's patented improvements for trams and stationary engines, was resumed. Mr. Stubbins and Mr. Daniel (instructed by Mr. Dyson) were for the plaintiff, and Mr. Lawrence, Q.C., M.P., and Mr. Bower (instructed by Messrs. Webb and Co., London) for the defendants.—The cross-examination of John Millward was continued. Witness said he believed that an intelligent workman would be able to construct an engine from the plaintiff's specifications. He did not consider that plaintiff's invention had been anticipated. He was acquainted with the specifications of Joseph Beattie, Sharp and Collett, William Watkin, John Bishop, and Sir Frederick Bramwell; but he did not think they were substantially similar to the plaintiff's.—Samuel Owen, C.E., said that he had acquainted himself with the construction of the defendants' engines, and that the drawings which had been produced gave a correct representation of them.—Thomas Rigby, mechanical and consulting engineer, London, said he was acquainted with plaintiff's invention, and had inspected defendants' engine at the International Inventions Exhibition. He considered the defendants' was an infringement of the design of plaintiff's engine. The plaintiff's engine was new, inasmuch as the exhaust ports were connected with a series of pipes, further, there were a series of tanks connected with each other by pipes through which the exhaust steam was taken until it was completely "killed," the object being to deaden the pulsation of the engine. These points were new at the date of the plaintiff's patent. He had carefully gone through all the alleged anticipations named, but there was nothing in them which would have the effect of deadening the pulsation of the engine, which was the invention claimed by the plaintiff.—This was the plaintiff's case.—For the defence, Mr. Norman Scott Russell, C.E., and general manager and engineer to the defendants, was called, and stated that he considered the plaintiff's engines to be different from the defendants' in several respects. It would be impossible, he thought, to construct an engine from Downes' specifications and drawings.—Sir Frederick Bramwell said that he had seen plaintiff's and also the defendants' engines. The plaintiff's notion for constructing a noiseless engine was entirely that of water condensation, and the defendants' was that of air condensation. After reading the plaintiff's specification he was of opinion that plaintiff arrogated to himself the position of being the first man who had ever condensed exhaust steam. This was not so. In his opinion there was a great difference between the plaintiff's and the defendants' engines with respect to the condensing and utilisation of exhaust steam. There were several noiseless and smokeless engines being run before 1872.—By Mr. Stubbins: Have you ever known any

engine on the same principle as Downes' which was travelling? Witness: I don't know what his principle is.—Not looking at the specification? No, I cannot see any principle in it. If the plaintiff claimed to be the first person to condense exhaust steam, he was quite wrong, for that was done by James Watt, and has been done continuously since. Another claim was made by the plaintiff under his specification to convey the exhaust steam and condensed water from the condensing tank to the boiler of the engine. This was wholly impracticable. A third claim was to convey the exhaust steam, or a mixture of exhaust steam and heated air, to the furnace or smoke-box of the engine, for the purpose of promoting the draught of the furnace and the economising of the fuel therein, and preventing smoke. But the plaintiff was, with respect to this claim, in a dilemma, for the method adopted by the defendants was exactly like that of Flude's patent, taken out in 1838, and if the defendants had infringed the plaintiff's patent, then that patent was itself but a copy of Flude's.

This evidence was supported by the testimony of Dr. Hopkinson. Mr. Tomlinson, the resident engineer to the Metropolitan Railway Company, said that since 1864 the engines of the company had been built like the defendants' engine, except as to the air condenser. They would run 3 miles without emitting visible steam,

Without hearing counsel for the defendants judgment was given for them with costs.

Mr. Justice DAY said he had come to the conclusion beyond all doubt that the plaintiff's patent was for a water condensing apparatus and the defendants' engine was primarily an air condenser. The defendants' engine was not an infringement of the plaintiff's engine. Assuming the validity of the plaintiff's patent, the defendants had not infringed it. He had also come to the conclusion with respect to the validity of the plaintiff's patent, that whether with regard to novelty or utility it could not be supported. It could not be considered new as to its parts or as to its combination. It was not a new invention. With respect to its novelty, it seemed to fail so far as the specified structure was concerned.

## HIGH COURT OF JUSTICE. CHANCERY DIVISION.

(Before Mr. Justice A. L. SMITH, sitting as Vacation Judge.)

SEPTEMBER 3.

**IN RE THE WEST CALLAO GOLD MINING COMPANY (LIMITED).** Mr. Marten, Q.C., and Mr. Stanley Boulter appeared in support of a petition presented by Mr. Charles E. Winwood Smith, a creditor to the amount of 1848l. 12s. 3d., to wind-up the company. Mr. Smith had acted as manager of the company in Venezuela during 1883 and 1884, at a salary of 1000l. a year, payable monthly. He asked that the company might be wound-up, on the ground that he was unable to obtain the arrears of his salary, and the company was insolvent.

Mr. H. T. Eve, for the company, denied that there was any agreement as to the salary; the company was not insolvent, as 9994l. remained unpaid on shares. The petition was not *bona fide*, and should be dismissed with costs. An agreement had been entered into with the New Callao Company whereby the West Callao Company lent their machinery, and the New Callao Company advanced funds for working the mines.

Mr. SALT, for creditors to the amount of 40,000l., opposed.

Mr. Justice A. L. SMITH said that the petition was presented under section 80 of the Companies Act, 1862, and, as he understood the law, the petitioner had first to prove that he was a creditor for a sum exceeding 50l.; and, secondly, that the company was insolvent. In his Lordship's opinion, the petitioner had proved that 400l. at least was due to him for salary. Then as to the insolvency in June, 1884. Mr. F. J. Warner, the secretary, wrote to Smith, saying, "We have hardly a shot left in our locker, and we shall hardly be able to pay your salary: you had better look out for yourself on your side of the water." There is no evidence that the company's condition had improved, and there was not evidence that 9994l. was due in respect of shares; the secretary, in his cross-examination, did not mention that sum as an asset of the company. The company was clearly insolvent. There must be the usual winding-up order.

## IN RE THE NEW CALLAO COMPANY (LIMITED).

Mr. Justice A. L. SMITH made the usual order for winding up this company, upon similar grounds to those upon which he decided the last case.

Mr. Marten, Q.C., Mr. Stanley Boulter, Mr. H. T. Eve, and Mr. Salt were the counsel appearing.

## A COLLIERY OFFICIAL COMMITTED

At the West Riding Police Court, Wakefield, John Broadhead, deputy at Messrs. Robert Holliday and Son's Colliery, East Ardsley, was charged with having committed a serious breach of the Mines Regulation Act by not making a true report as to that part of the mine of which he had charge, and by not withdrawing the men on the discovery of inflammable gas.

Mr. Gill prosecuted on behalf of the Home Department, and from a statement made by him, and corroborated by a miner named George Hopwood, and Mr. Cyrus Holliday, the certified manager, it appeared that on the morning of August 4th the defendant went into the working place of two miners named George Hopwood and George Lambert to make his usual inspection, and although he found inflammable gas there, he did not order the withdrawal of the men from that part of the pit. He furthermore committed a breach of the provisions of the Act by falsely reporting in his book that the ventilation was good, and that the pit was safe and free from gas. Shortly after defendant's visit an explosion of gas occurred, and Lambert was so seriously injured that he died a few days afterwards. Fortunately the other man (Hop



## THE MINING EXHIBITION AT GLASGOW.

On Tuesday last, under the auspices of the Mining Institute of Scotland, an exhibition of colliery and general mining machinery, appliances, and plant was opened under most favourable circumstances. Although a number of the exhibitors at Glasgow have stands at the Inventories Exhibition, at South Kensington, it is probable that the mining public generally North of the Tweed has not had an opportunity for visiting the South, and will, therefore, patronise the smaller but still eminently practical local show. It was a pleasing surprise in connection with the opening ceremony, on Tuesday, to find much order and general completeness—results due to the labours of Mr. James S. Dixon, President of the Institute, and the joint secretaries, Messrs. James Barrowman, Robert L. Galloway, and Robert T. Moore.

At noon on Tuesday Col. J. G. C. HAMILTON, M.P. of Dalzell, performed the opening ceremony in presence of a large company of ladies and gentlemen. Amongst those present were Baillies Bertram, Neil, and Shaw; Councillors Mitchell, Struthers, Hamilton, Gardiner, Wallace, Logan, Duncan, Bowman, and McLean; Mr. James S. Dixon, President of the Institute; Mr. Ralph Moore and Mr. Alexander, Inspectors of Mines; Mr. J. T. Robson and Mr. J. M. Ronaldson, Assistant Inspectors; Colonel Austin Hamilton; Mr. John Watson, of Earnock; Mr. John Wilson, coalmaster; ex-Provost Black, Airdrie; Mr. Robertson, mining engineer, Mr. John Nicol, City Chamberlain; Mr. Parker Smith, of Jordanhill; the Editor of the *Mining Journal*, and a number of colliery masters and managers.

Mr. J. S. DIXON said that some months ago, at a meeting of their Institute, there was a discussion of a somewhat desultory nature as to the merits of hutes—these little wagons they saw for carrying coals underground. Some one suggested—he thought Mr. Aitken, of Falkirk—that the Institute might send hutes from the various collieries to some places, so that the merits of each might be investigated and reported upon. That suggestion took root, and now it had grown into the Exhibition they were now about to open. The Institute appointed a general committee, who proposed a guarantee fund, which was heartily supported by the iron and coal masters. An executive committee was appointed, who had carried out the details, and upon them and upon the secretaries the burden of this work had fallen. (Applause.) They were greatly indebted to the committee, to the secretaries, and to the exhibitors for coming forward as they had done. In the unavoidable absence of Lord Provost M'One, who consented to become Chairman of the general committee, Colonel Hamilton had kindly consented to open the exhibition. (Applause.) He was most fitted to do so, because not only of his being a member of the Institute, but from his position in the country, and his interest in the coal and iron industries. (Applause.) He then presented Colonel Hamilton with a handsomely-bound catalogue of the exhibits, and called upon him to open the Exhibition.

Colonel HAMILTON said that in the unavoidable absence of the Lord Provost, who had been called to Balmoral, he had been asked to say a few words in opening the Exhibition. Except as a matter of form, it was scarcely necessary that he should do so, for if they looked round about it spoke sufficient for itself. They would see that it was essentially practical and instructive. They had now had a good deal of experience of exhibitions, and they seemed to have two objects—amusement and instruction. As to the former no exhibition could attempt to compete with the great show at Kensington. But they were to have the electric light and a band, and he hoped the ladies of Glasgow would follow the example of their sisters in London and give it their patronage, especially as they will have the unique advantage of being able to ride in a coal hutch without going down the pit. (Applause.) The chief object, however, was instruction, as became this great commercial town. The Mining Institute of Scotland being anxious to give a cordial welcome to that most important body, the Iron and Steel Institute of Great Britain, which was now paying a visit to Glasgow, had chosen this day to open this Exhibition, in which even they, he believed, would find something new and instructive. (Applause.) The executive committee and their secretaries had brought together a collection which well illustrated the present condition of Scotch mining. Few industries could show such progress, or had given rise to so much inventive talent. Some of them could remember the way in which mines were worked 30 or 40 years ago. But how great the change had been, and he believed there was even a greater change to be looked forward to. There were, no doubt, inventors present, who, if they liked to build castles in the air, might amuse themselves by imagining how some day the engine at the pit mouth, besides that necessary duty of raising coal and water, would produce electricity which, conveyed to every part of the mine, would not only light it and work boring, cutting, and hauling machines, but place the miner in the position of a highly skilled mechanic. (Applause.) Perhaps even the coal pit might provide light and heat for the whole surrounding country. They might possibly find some invention in this direction already in this building, but whether or not they would, he was sure, find much that was interesting, and feel grateful to the gentlemen who had taken pains to bring together such a magnificent collection. (Applause.) He begged to declare the Exhibition open.

Mr. ALEXANDER proposed a vote of thanks to Col. Hamilton for opening the Exhibition—the first connected with the Institute, but not, he hoped, the last.

Col. HAMILTON acknowledged the compliment, and proposed a vote of thanks to the secretaries.

The opening proceedings then terminated.

The exhibition is purely technical, all the exhibits being intimately related to the subject which it is intended to illustrate. The major part are deposited in the drill halls, but the adjoining ground, to the extent of about 5000 square yards, has been enclosed and utilised for such of the exhibits as do not require to be protected from the weather. There are two entrances to the exhibition grounds, one from the Great Western Road and the other from West Princes-street. On the oblong piece of ground within the former entrance the haulage system, which extends 10 miles through the underground workings of Cadzow Colliery, near Hamilton, is seen in operation. The rails are 208 yards in length, and on them will be run by means of an endless wire rope, six hutes—similar to those used for conveying coal from the workings to the foot of the shaft—accompanied by a bogey with brake and connecting gear. Passengers are carried at a charge of one penny in three of the hutes, three persons being accommodated with seats in each hutch. Suspended from posts alongside the line are two wires, which, by being simply pressed together by the occupant of the hutch, ring a signal bell in the engine-house. As in the case of cable tramways on the streets of a city the rope is continually in revolution, and the hutes are set in motion or stopped by an apparatus on the bogey which either grips or lets go the rope as required. The motive power is supplied by a pair of coupled haulage engines, with reversing link motion, constructed by Kesson and Campbell, Hamilton and Glasgow. The steam required for this and the other machinery in the grounds is obtained from a duplex furnace steam boiler by Penman and Co., Glasgow. Alongside the engine is the "Capell" double-power mine ventilator or fan, shown in operation by Messrs. Richard Lloyd and Co., of Birmingham, the sole manufacturers for Great Britain. It is claimed for these fans that at a given blade tip speed they will give superior results to the Guibal fans in volume and effective water gauge; and that size for size they are three times as powerful as any open ventilators now in use in colliery ventilation. At the eastern exterior of the halls is a working model of the reciprocating pumps

invented by John Morison, agent for the Marquis of Lothian's Newbattle Collieries, Dalkeith, and now exhibited for the first time. The pumps are used where power requires to be transmitted to a distance down inclines or to dip workings. The medium of transmission is wire ropes, which can be extended to any distance, and the pressure of water in a compensation column causes the back stroke. Grant, Ritchie, and Co., Kilmarnock, exhibit a patent wire rope clip pulley and friction clutch, a coal-cutting machine, also a set of Moore's patent hydraulic pumps and engine. One of the latter is used by the Fife Coal Company, at Leven, and two by the Broxburn Oil Company in their shale pits at Broxburn. The power is transmitted from the engine on the surface to the pumps by means of two columns of water, which may be conveyed in pipes to any distance. An exhibit that attracts considerable attention is a wooden shaft raised in the air, and having suspended in it two full-sized, double-decked cages, with two loaded and two empty hutes in them. Flanking the shaft, and also exhibited by the Carron Company, Falkirk, is an automatic tipping machine with a loaded hutch on it, and alongside it is a weighing machine. John Galloway, Ayr, has varieties of coal-cutting machines, and McPherson's safety gate for mid-shaft workings. Clarkson Brothers, Glasgow, exhibit the "Champion" direct double-acting ram or bucket steam pump, used for feeding boilers with hot or cold water, also as fire-engine. Contiguous to it they have a Syrinse gas-engine suitable for light work. Dickson and Mann, Ardmadale, show steel hutes on wheels; and John Watson has a collection of hutes and other appliances, as used at Earnock Colliery, Hamilton. The Bent Colliery Company, Hamilton, and the Clyde Coal Company, of the same town, exhibit hutes, &c., from their collieries; Joseph A. Jeffrey, Ohio, U.S.A., exhibits a coal-cutting machine and a coal-drill; while Dick and Stevenson, Airdrie, have one of the latter gentleman's patent multiple furnace water tube boilers for being fired with the spent gases from an ordinary puddling furnace. At the extreme west of the enclosure are sections of workable minerals from the Scotch coal fields, showing the relative positions of upper coal, limestone, and lower coal series in Lanarkshire, Fife-shire, and Edinburghshire. The sections are shown in the order of the strata, Lanarkshire in the rear, then an intermediate section from Alloa, Bathgate, Wilsontown, and Lesmahagow, followed by Fife-shire and Edinburghshire. The seam nearest the surface in Lanarkshire was the Palacecraig ironstone, located in the neighbourhood of Coatbridge; but, as it has been worked out, no section of it has been procured for exhibition. This seam was only 1 ft. in thickness. The thickest seam in the county is that of the Camps lime, which measures 40 ft., the Dunnet shale is 12 ft., the Audlton limestone 10 ft. 9 in., and the Ell coal, worked by the Cadzow Coal Company, Hamilton, 7 ft. 6 in. thick. The thickest coal seam in Scotland is that of the Dairsy Main coal, which is 21 ft. thick, but the committee have been unable to obtain a section.

Entering the large hall and turning to the left, is the stand of James White, Glasgow, where, among various instruments relating to the surveying department of mining, is an electric bell that can be rung through 3 miles of galvanised wire with one cell of battery. Adjoining it are the exhibits of the Glenfield Company, Kilmarnock, comprising valves of various descriptions, a pillar fountain as used for colliery villages, a water engine, and a recorder with clock and drum, giving a diagram of blast pressure. The Glasgow Gas Engine Company show one of the John Magee patent vertical gas engines, and Dron and Lawson, Glasgow, various screwing machines. The latter firm are also the constructors of two patent hydraulic pumps exhibited by David Johnston, Glasgow. The novelty of these pumps is that they work without fuel, attendance, or lubricant. Their principle is very simple. The water falling down the shaft is collected on a higher level than the pump, to which it is led by means of a pipe. The inflow works an engine, which pumps the water out of the lower workings. Adjoining it is an artificial waterfall, half-hidden among ferns and heather, showing the quantity of water which is raised. Alongside is a smaller-sized pump by the same patentee, adapted for sinking docks. These pumps form one of the most interesting features in the hall and are worth careful examination, being cheap, portable, simple in design and effectual in operation. Crosley Brothers exhibit in operation a 5-man power vertical "Otto" gas engine, suitable for purposes where only a limited amount of work is required. The general success achieved by Crosley Brothers with the "Otto" shows no signs of abatement. Wherever these engines are exhibited we were told orders are sure to follow. Ranged on the neighbouring stand, the Sugar Refiners' Appliances Company, Glasgow, show samples of Brown coal from England, Ireland, Germany, and America, used in sugar refining. The St. Mungo Chemical Company have an interesting collection of specimens of products of shale and coal, from the tar up to pigments for artistic work, made from the aniline dyes. The Carbon Cement Company, Glasgow, have samples of their boiler and pipe covering cement to prevent radiation of heat, also algin boiler fluid, a new substance extracted from seaweed for removing incrustation. Tangye Limited, Birmingham, devote a large space to their machinery, which covers one of the largest and most prominent spaces in the hall. Prominence is given to the various pumps for which this firm are celebrated. Archibald Baird and Son show numerous colliery specialities manufactured by them. Dynamite has attained such celebrity during recent years that visitors will be interested in the stand of Hunter and Fotheringham, Glasgow, where there are dynamite, tonite, and gunpowder cartridges, as manufactured by the Rhenish Dynamite Company of Opladen, near Cologne, Prussia, the Cotton Powder Company, &c. There is, however, no danger of an explosion, as, though the cartridges are perfect in form, colour and general appearance, they are only dummies. The same firm also shows an electric blasting apparatus, which consists of a small portable box, from which wires are led to the charges, of which any number from one to 50 may be fired at once by turning a handle the requisite number of times, and pressing a button. Holden and Brooke, Salford, exhibit injectors; T. R. Summerson, Darlington, water gauge fittings; James Ashworth, Stanley Hall, Derby, has a collection of various kinds of safety-lamps, including Mueseler Joussin. Mueseler Arnold Godin. Mueseler standard Belgian with glass bell-mouthing to the chimney. Mueseler, as above fitted, with Ashworth's disc and tubes in place of the horizontal gauze, and also Ashworth's inner and outer shields. Ashworth Woolrych lamp, fitted with Ashworth's reflector and inner and outer shields. Ashworth Arnold Mueseler, fitted with Ashworth's disc and tubes, reflector, and inner and outer shields. Oil vessel with two wicks, for burning petroleum or paraffin. Mueseler chimney, showing mode of attaching Ashworth's disc, tubes, and reflector. Arnold Mueseler chimney, with foregoing fittings. Mueseler chimney, with shield for horizontal gauze. Ashworth inner shield, for any glass lamp, and a drawing showing section of the Ashworth Arnold Mueseler and the Ashworth Woolrych. William Corbet, Edinburgh, has models in tin, iron, and fire-clay. The Hardy Patent Pick Company, Sheffield, have a column decorated with mining tools, and beside it Bainbridge's patent reflecting safety-lamp, which burns with spirit, and is stated to be safe in an explosive current of 41 ft. per second. No department is better represented than that of ropes—steel, wire, copper, and hemp—for winding and haulage purposes, and also for use as lightning conductors. At the stand of T. and W. Smith, Newcastle-on-Tyne, may be seen a ponderous hemp rope, 29 in. in circumference, such as was formerly used for hawsers, and which has now an equivalent in a steel wire rope of 8 or 9 in. The same firm have also a coil of steel rope, 9½ in. in circumference, and with a breaking strain of 200 tons. This description of rope is used for raising sunken vessels by means of pontoons. Similar ropes are exhibited by George Cradock and Co., Wakefield; D. H. and G. Haggie Sunderland; Dunn, Humble, and Co., Newcastle-on-Tyne; J. Williams and Co., Wishaw; James Brown and Co., Manchester; John Shaw, Sheffield; and Felton and Guilleaume. The stand of R. S. Newall and Co., Gateshead-on-Tyne, has a special attraction to those who take an interest in submarine telegraphy. One case contains sections of the following submarine telegraph cables:—The Dover and Calais, which was the first submarine cable ever laid; the Dover and Ostend; the Great Belt; the Bona; the Russian; the Red Sea and India; the Channel Islands; the first Atlantic; and the Donghae and Portpatrick. The wire ropes shown were

invented in the year 1840. The invention consists in preventing the wires from being twisted whilst they are being laid round a core, which may be of hemp or other elastic material, and these strands are laid round a core, also of hemp, to form a rope. The wires are thus kept at an equal distance from the centre, and consequently are all equally strained, the greater strength being thus secured. The submarine cable is simply a slight modification of a strand of wire-rope, and was also Mr. Newall's invention. The insulated telegraph wire forms the core of the strand or cable, which varies in weight from about 1 ton per nautical mile to 10 or more tons per nautical mile. The Niagara Suspension Bridge was constructed by this firm, and Cleopatra's Needle was towed from Egypt to England by one of Messrs. Newall's and Co.'s ropes. After having laid the first eight or 10 cables Mr. Newall invented the apparatus for laying them. On the stand are specimens of the cables manufactured for the Niagara and Lambeth Suspension Bridges, and a sample of the rigging of H.M.S.-Black Prince. There is also an illustration of the sailing barge William Connell, built in 1851, the first vessel provided with wire rigging. Messrs. Newall show a piece of the rigging of the well-known *Vanduara*. Nobel's Explosives Company exhibit samples of dynamite, blasting gelatine, also detonators and fuses for exploding them. On the same stand is a block of copper after having been acted on by No. 1 blasting gelatine, the strongest explosive known. A dummy specimen of the latest invention of Mr. Alfred Nobel, called Gelatine-Dynamite, is also shown. John Mills and Sons, Newcastle-on-Tyne, devote a stand to the exhibition of the safety-lamp designed by Mons. J. B. Marsaut, of the Besseges Coal Company. The lamp bottom is almost of the ordinary construction, the glass is carefully ground and tempered, while above it, and within an outer protecting shield, are two gauges. The air enters through small holes, strikes upon a brass ring, and then passes through the double gauze, thus not only providing against explosion where fire-damp is present, but avoiding the possibility of the light being blown out. The feature of the lamp is, however, the lock, which is the invention of W. J. H. Ryder. The protecting shield is attached to a brass rim, which screws on to the frame of the lamp, to which the oil reservoir is similarly attached. One of the pillars of the frame is moveable, and when the upper part is placed in position the pillar is moved up into a recess in the rim of the shield. The bottom oil reservoir being screwed on, the pillar is placed in position and locked by a rivet of lead. The rivet is closed by pliers, which at the same time makes a stamped impression on the lead. The pliers, which thus forms a key to the lamp, are retained in the possession of the manager or his representative. Messrs. Douglas Fraser and Sons, Arbroath, exhibit samples of the class of shoes called alpargatas, which are the principal wear of the Spanish and French peasantry and mining population. The shoes consist of a jute or hemp sole, with canvas uppers. James Brown, Glasgow, has a collection of various optical and surveying instruments and chemical apparatus, and Morison Brothers, a selection of draughtsmen's requisites. The Gartsherrie Fire-clay Company, the Blochairn Sand and Fire-clay Company, John Young, Sons, and Co., Heathfield and Cardowan, the Glenboig Union Fire-clay Company, and James McNaughton, Son, and Co., Heather Knowe, all show samples of their manufacture. Love and Stewart, Glasgow, have an attractive arbour constructed of pit props and sleepers. Roberts and McGill, Glasgow, show a collection of tools and appliances requisite in mining. Charles Robertson Edinburgh, has a hutch weighing turn tables and machines. Richard Johnstone, Clapham, and Morris, Manchester, exhibit various styles of safety-lamps and lead rivet-making machines. William Struthers, Glasgow, has anti-friction bearings, R. B. Lindsay and Co., and John Allan, Glasgow, samples of steam and hydraulic packings; Paul Brothers, Glasgow, gutta-percha pump buckets, Scmerville and Morrison, Rutherglen, various descriptions of waterproof cloth: Daniel McQueen, a brass pump bucket for deep pumping, made by Miller and Co., Coatbridge; the Niddrie and Benhar Coal Company, Glasgow, has anti-friction bearings, R. B. Lindsay and Co., Edinburgh, wheels, pulleys, rollers, and samples of chilled metal for crushing rollers. A considerable amount of space is occupied by the Carron Company, Falkirk, with specimens of limestone, coal, and ironstone, in the raw and calcined state, also pig-iron from the company's fields and works. They also exhibit the old-fashioned caronades—so named because made at Carron—once so much used in warfare; modern cooking-ranges, grills, stoves, &c., while throughout the building they have distributed seats for the use of visitors. The Westburn Coal Company have arranged specimens of their coal, and H. M. Edwards, Wakefield, has a fac-simile of the original Davy lamp, besides specimens of other safety-lamps in use. James Barr, Kilmarnock, shows sawing machines; Robert Wilson and Sons, Bishop Auckland, steel bore rods and patent clip forks; the Automatic Boiler Feeder Company of Scotland, one of their feeders; John Whitelaw, C. and M.E., Edinburgh, specimens of coal, &c., from Servia; the Aeme Steel Foundry Company, Glasgow, various steel wheels; M'Naughton and Sinclair, Glasgow, colliery report and other books; the Fife Coal Company, a section of Leven Cannel coal; Henry Aitken, Falkirk, samples of Boghead coal, and of timber treated by his naphthaline process of preserving. Robert D. Thomson, Motherwell, exhibits a sample of spiral coal for gasmaking purposes from Leicestershire; the Birkenshaw Coal Company Foundry, malting and shale coke, the latter used for yachts and stoves; Thomas Thornton, Lesmahagow, blocks of "main" and "wee" Lesmahagow coal; the Colleettwr and Llai-Hir Copper and Lead Mines Company, specimens of copper and silver-lead ores from their mines in Cardigan, shire, also native copper from Servia, and slates from Merionethshire; William Craig, Coatbridge, colliery books and forms; John Vivian, C.E., a selection of cores obtained from mineral borings in English and Scotch water and brine wells; John Galloway, Ayr, a core from a mineral bore; and Robert Caldwell, Dublin, railway and tramway trucks. The Pumperston Oil Company have a case containing samples of shale and its products. James Bonnar and Sons, Dunfermline, exhibit an ambulance stretcher, designed by Dr. Nasmyth, Cowdenheath, which is considered specially suitable for use in case of colliery accidents. Nettiefolds (Limited), Birmingham, have small wall cases of screw goods. Stephen Humble, London, shows his patent detaching hook, blasting plug safety-lamp, sinking link, and draw bars; Robert Hamilton, Edinburgh, mining requisites, A. B. Fleming and Co., Granton, samples of their well-known oils; and Robert Liston and Co., Glasgow, products of the distillation of resin. Colin Dunlop and Co., Hamilton, forward a collection of the pig-iron manufactured by them, together with specimens of minerals raised from their pits. The Nitshill and Lesmahagow Coal Company send blocks of the Duke of Hamilton's Main Lesmahagow Cannel coal, and pieces of calcined black band ironstone. Messrs. William Cook and Sons, Glasgow Steel Works, Cranstonhill, Glasgow, have a large stand, and show several novelties, sketches of which will appear in a future number of the *Mining Journal*. The most interesting, perhaps, is the full-size model in operation of a new patent coal tippers, which is destined to come into very general use, as the prevention of the breakage of the coal alone by its use is a matter of the greatest importance. This is not its only feature, however, for in addition there is a great saving effected in the wear and tear of doors, and time and labour in its operation. These patent coal tippers are worth seeing by colliery-owners, and certainly form another of the valuable practical and novel features of the Exhibition. It is a circle plate tipper, with a lid and a tray, which retains the coal until it reaches the screen, when it is emptied without any violent shock to break the coal. Messrs. Cook also show the steel and iron hatches of which they are such large makers—circular saws, hand saws, cross-cut saws for pit use, and various samples of cast steel, showing the different stages of manufacture from the iron to the finished bar. The Compressed Lime Cartridge Company (Limited) of London, whose manufactures we have commended, have a prominent stand which on the opening day attracted considerable attention. In view of the difficulties and dangers attending shot-firing, and the satisfactory results shown by the use of the compressed lime cartridge, it seems probable that this company's system will extend considerably. It was recently awarded a silver medal at the Inventions Exhibition. Messrs. John Bowman and Co., Glasgow, have the "Hirnant" drill for tunnel work (Larmuth and

Howarth's patent), the "Hirnant" rock-drill by the same patentees, and Bernay's patent steam-pumps, of which Messrs. T. Larmuth and Co., Salford, are sole makers. Lindsey Burnett and Co., Govan, send boiler-plates and fittings; Dickson and Mann, Armadale, wheels and rollers; Henry Pooley and Son, Glasgow, weighing machines and steel yards; Maurice Gandy, Liverpool, patent belting and fasteners; Dick, Kerr, and Co., Kilmarnock, portable railway and mining wagons; Lancaster and Tonge, Manchester, various descriptions of traps, pistons, and lubricators; John Turnbull, jun., Glasgow, a turbine; Muirhead and Guthrie Smith, Glasgow, samples of lead ore from North Wales; Isaac Hill, Derby, a tub clip and adjustable prop; J. Watt, Torrance and Co., Glasgow, colliery and railway timber; John Bowman and Co., Glasgow, drills and pumps; John Gillott and Son, Barnsley, a coal cutting machine and several useful appliances connected with machinery; Thomas Potter, Glasgow, pumps, traps, and tanks; Dempster, Moore, and Co., Glasgow, blowing and exhausting fans; and Lamberton and Co., Coatbridge, a Celtic horizontal girder and a patent compound balanced engine, also model of a stone-breaker. The Simplex Electric Light and Plant Company, Manchester, besides setting aside a stand for lamps and fittings, have provided for the illumination of the large hall a dynamo-machine capable of running 200 20-candle power incandescent lamps. Between 140 and 150 incandescent lamps with spiral threads of carbon are suspended from the roof, and with these the hall will be illuminated at night. The lesser hall is illuminated with electric lights by Norman and Son, Glasgow, and the exterior by Henry Bennett and Co., Glasgow, who have fitted up four arc lights, each of 3000 candle-power. Adjoining the Simplex Company's stand is that of the Protector Lamp and Lighting Company, with a patent air-gas machine, which makes gas from hydrocarbon oils for illuminating purposes without heat or coal. There are also safety-lamps of different kinds. Thomas McCulloch and Sons, Kilmarnock, provide an engine for driving the three dynamos, and Marshall, Sons and Co., Gainsborough, exhibit several very fine engines. Ashkham Brothers and Wilson, Sheffield, have several different varieties of pulverisers, the most noticeable being Luco's patent, a special machine for all minerals, phosphates, cement, &c., which does its work very satisfactorily. Samples of pulverised cement, phosphates, and Fuller's earth are exhibited as soft and fine as wheat flour. This firm obtained the bronze medal for pulverising machinery at the Inventions Exhibition. London Brothers, Glasgow and London, show their horizontal type of centrifugal pumping-engine, and their patent "Dead Blow" hand-power rock-drills. The latter are designed to meet the demand for some ready and convenient mode for drilling blast holes, to supersede the slow and tedious process of hand boring. These machines are self feeding, and the feed can be readily adjusted to different classes of rocks. The deepest holes can be bored from one fixing. The machines are capable of boring holes, from 1 in. to 4 in. diameter, at any angle and to any required depth. The rate of boring as compared with the ordinary process is described as three or four to one. They are very portable, as two men can move the machine from place to place, and set it in action. B. H. Remmers and Co. show various kinds of pumps. Alexander Turnbull and Co., Glasgow, show patent safety-valves and boiler fittings, which are in use at the Glengarnock Steel Works, on all the boilers at Messrs. Merry and Cuningham's and at the Tharsis Sulphur and Copper Company's Works. The ordinary safety valve, and many others, when subjected to the maximum steam-generating power of the boiler test, will allow the steam pressure in the boiler to increase above the valve load to a considerable extent, the increase being in very many instances to a dangerous degree, whereas with the Turnbull valve, before the pressure has appreciably increased the valve will have lifted steadily and given full and free escape for all the steam generated, and will close again practically at the opening pressure, thus performing the functions of a perfect safety valve. John Macdonald, Glasgow, as agent for Whitehead and Pollock, patent double-action piston rings; Gilbert McPherson, jun., Stair, specimens of Water of Ayr stone; Russell and Fallerton, Glasgow, samples of wood coated with the Carbolineum Avenarius; Thwaites Bros., Bradford, an air-compressor, blower, and steam-hammer, also a sectional model of Stewart's recently invented "Rapid" cupola for melting iron, and, with water-jacket, for smelting copper, silver, and lead ores; and Gilbert, Bogle, and Co., Glasgow, two varieties of steam-pump. Considerable interest attaches to the Worthington steam-pump (114, Queen Victoria-street, E.C.), several of which were recently purchased by the British Government for the water supply between Suakin and Berber. The engine, which is shown for the first time in Great Britain, is an American invention, and is used in connection with the pipe lines in the United States for pumping petroleum. Two pumps act side by side, producing a continuous flow. At the east end of the hall there is a group of drawings of more than ordinary interest. They are by Mr. R. T. Moore, C.E., Glasgow, and Mr. J. M. Ronaldson, Assistant Inspector of Mines. Mr. Moore displays a finely-executed map of the Scotch coal measures, drawn out in 1854 by his father, Mr. Ralph Moore, Her Majesty's Inspector of Mines, and supplies section of same, with diagrams showing the production of iron from 1760 to 1884, the output of coal in Scotland and the prices and miners' wages from 1849 to 1884. Mr. Ronaldson contributes sections of strata of a famous Durham "slip," a plan showing the method of working by the longwall system, cross-section of road and of working face in longwall workings, plan showing stoops being taken out in a seam worked by the stoop-and-room system, sketch of colliers at work, and sketch of miners of a bygone age descending the shaft.

At the west end of the hall, J. Copeland and Co. exhibit photographs showing various kinds of engines and other plant in use for mining, pumping, and refining of paraffin, also sugar refining. In the lesser hall, James Clark, Cumnock, exhibits a model of a coupled horizontal winding-engine; Landale, Frew, and Landale, mining engineers, Glasgow, vases made from coal and shale; R. Armstrong, Dalkeith, a model of railway rail fastenings; John M. Ronaldson, Polkshield, models of different modes of opening up seams of coal; and the Bent Colliery Company, a model of the endless rope haulage system in use at their colliery at Hamilton. The North of England Institute of Mining and Mechanical Engineers, Newcastle-on-Tyne, forward a case containing specimens of safety-lamps, past and present. William Kirkwood, Penicuik, exhibits a model showing a system of working a single road incline; M'Lean, Dalzell, and Co., Lemshagow, articles made of coralline limestone; R. E. Ornsby, Newcastle-on-Tyne, a model of a coal and stone detector; John Smith, Bloxwich, a model of a travelling screen for sizing coal, used in Staffordshire; William Carter, jun., Glasgow, his patent apparatus for coupling and uncoupling railway wagons; John Sansom an appliance for communicating with the driver and guard on a railway. F. J. Rowan, C.E., Glasgow, shows a model of Wilson's patent gas producer for making gas from ordinary dross for firing purposes. The dross is fed in at the top by means of a hopper, and air is forced into the producer by means of steam jets. Peter M'Beth, Falkirk, shows self-acting safety gates for midshaft workings; and William Carey, Bo'ness, a model of an arrangement by which a pair of horizontal coupled direct-acting winding-engines can work with both ropes over the drum, and in the same pit. P. Walker, Airdrie, sends cranes made of gas-coal from the Airdrie Masselband seam and Robert Dunlop, chemist, Stanrigg Oilworks, Airdrie, an interesting collection of fossils, illustrative of the flora and fauna of the carboniferous system, chiefly from the Lanarkshire coal basin. From Gartsherrie Science School, Coatbridge, are two incline dogs and haulage clips, and from John Watson, Slamannan, a model of safety-gates. Henry Simon, Manchester, is the exhibitor of a coke oven. A furnace having been lighted beneath the oven, the coal is fed in from the top, after which the oven is closed. The gas which is generated passes through a process which enables the tar, ammonia, and ammoniacal liquor to be recovered. Thereafter the remaining gas is led round the exterior of the oven, to which it supplies the requisite heat. The Bent Colliery Company forward various drawings of apparatus used by them, and the Mining Institute and T. Lindsay Galloway submit geological maps. Landale, Frew, and Landale, M.E., Glasgow, and John Morison, Dalkeith, send sections, the former of the Scotch coal fields, and the latter of a cross-cut mine driven in the lower carboniferous formation at Newbattle Collieries,

at a depth of 150 fms. James Bigg, London, exhibits a drawing of his coal-tipping machines and screens; John McCulloch, Airdrie, plans of by-product coke ovens, gas producers, and oil retorts; Robert Andrew, Dunfermline, a plan of a screen for picking and clearing coals, and of a set of folding shutters for shafts. Norman M. Henderson, of the Broxburn Oilworks, exhibits drawings of his patent improvements in the manufacture and refining of mineral oils. Thomas T. Rankin, Gartsherrie Science School, Coatbridge, sends various sketches interesting to miners. Henry Aitken, Falkirk, exhibits a plan of his improved method of condensing gas, also of improvements in making coke, and taking off oil, tar, or ammonia. The North Staffordshire Institute of Mining and Mechanical Engineers forward a plan of the coal field in that district, and another plan illustrative of the working of the seams. Gilbert McPherson, Ayr, is the exhibitor of a plan for a proposed sectional working for localising explosions and securing thorough ventilation in fiery mines. In the gallery adjoining the lesser hall are exhibited Cornish clacks used in pumps at Cadzow Colliery, showing the leather mountings as taken out a few weeks ago after from 9½ to 11 years' work. John Smith, Bloxwich, sends samples of tools from Staffordshire. The Legbrannoch District Collieries Company, Holytown, exhibit the Harrison mining machine and the Haswell mechanical coal-getter. Reid, Parker, and Co., Glasgow, have specimens of non-conducting coverings and cements. The Eglinton Chemical Company exhibit silica bricks, also Neinzerling's patent safety-lamp for use in fiery mines. All air passing into or from this lamp has to pass through an incombustible filter which retains dust and sparks. John H. Peck and Co., Wigan, show one of their patent ambulances.

We have endeavoured to give a slight sketch of what is to be seen at this Exhibition, and it is only necessary to add that those interested will be amply repaid by a personal visit. The number and interest of novelties is remarkable in proportion to the extent of the Exhibition. It is proposed to close the Exhibition on the 24th instant.

#### A DELUGE OF COPPER

(From the Times.)

Copper at 43L 10s. per ton is a paradox which the oldest member of the trade is puzzled to explain. It is one of the "frightful examples" of depression, and as such will, no doubt, come very prominently under the notice of Lord Iddesleigh's Commission. Over-production, which is now the *bête noir* of all our staple industries, has been especially hard on copper. In the past five or six years there has been a general outbreak of new supplies in all parts of the world, notably in the Far West, where Arizona and Montana threaten to eclipse the fabulous copper mines of Lake Superior. The copper industry of America, though yet in its infancy, is one of the most gigantic developments now claiming the attention of the political economist and the man of business. Its significance is great both for the regions in which it is carried on, and for the general commerce of the world. It raised Michigan from a half-populated lumber field into a prosperous and wealthy state. It has given to Arizona the progress of half a century condensed into a few years. It is now breaking for Montana her bonds of ice, and bringing her rapidly to the front as a mineral producer. It is rapidly overtaking gold and silver as a source of national wealth for the Americans. Even at prices so low that they have no parallel in history, its annual product is valued at more than one-half that of the gold, and more than one-third that of the silver raised in the States. In dividends earned and paid it takes the lead of both. Up to the end of 1884 the total amount paid in dividends by American gold mining companies was about \$16,750,000, silver mining companies fully \$14,000,000, and by silver and lead mining companies over \$14,500,000. The aggregate of the copper mining dividends to the same date exceeded \$34,500,000. Though they have now dropped to about \$2,000,000 per annum we cannot close our eyes to the vast possibility they contain of future expansion. Copper, in short, is one of the great coming questions of American industry, and through it of international trade.

Twenty years ago America revolutionised the wheat market of the world. Ten years ago her silver mines began to demonetise silver, and the farthest-seeing prophet confesses himself puzzled to anticipate where the process may end. Now the Americans are about to force on the Old World a life and death struggle with regard to copper. While this competition was still in its infancy the copper market had begun to feel the pressure of over-production. Cornwall had been swamped by Australia, Australia, in its turn, had been over-powered by Chili. Next came the gigantic mines of the Spanish Peninsula, threatening to throw "Chili charters" in the shade. During the early part of that struggle America was one of the main supports of the market, consuming considerably more than she produced. With the development of her Lake Superior mines, however, she swung round from the position of a leading consumer to that of a first-class producer. When on the back of that she brought into the field her new copper mines in Montana and Arizona all pre-existing calculations were utterly upset. The copper market had to find a new level in accordance with the vast supplies which were being rushed into it both from the Old World and from the New. Ages now seem to separate it from the time when 140L per ton was a not uncommon quotation for sheet copper, and 120L was considered a fair working average. Ten or a dozen years later, when Wallaroo dropped into the "nineties," there was serious alarm among mining shareholders in Australia. Yet a little later, when the market found itself under the control of Chili bars at 70L per ton, times were considered very bad indeed. It is difficult to realise that only three years ago such a price was being dolefully grumbled at as ruinously low. During the past summer smelters have more than once been glad to get in the neighbourhood of 43L per ton. Whether or not copper touched bottom then would be as hazardous to affirm as when miners were declaring that it did not pay to produce at double the price.

In the course of half a generation the copper market has collapsed as absolutely and completely as silver did, and by precisely the same process. In that short period the marketable supply has increased more rapidly than in the whole previous history of copper mining. The copper production of the world, which is estimated to-day at from 200,000 to 220,000 tons per annum, was so recently as 1880 calculated at 120,000 tons per annum; in 1870 it was little more than 80,000 tons; and in 1850 it was between 40,000 and 50,000 tons. This enormous increase of supply has come mainly from new sources which were quite unknown and unsuspected a generation ago. They have sprung into operation one after another like thrilling situations in a melodrama, and each has been a greater puzzle than its predecessor. The sweet simplicity of copper broking as it was carried on a few years ago has been transformed into a bewildering maze of brands and grades and geographical distinctions. Swansons could then have counted on the fingers of one hand the various localities from which it drew its raw material. Now there are more than 20 separate and distinct copper-producing countries, most of which exercise more or less influence over the European market. From Algiers on the Mediterranean to Chili and Peru on the Pacific Ocean, from Norway to the Antipodes, and from Canada to Japan, there has been an epidemic of copper mines. Some countries, it is true, cut a very small figure in the list, but they can all flatter themselves on having great possibilities. There is a delightful uncertainty attending every one of them, and where we have only a few hundred tons this year, we may next year find thousands. The detailed estimate of H. R. Merton and Co., of London, shows that there are at least a dozen countries which produce more than 1000 tons of copper per annum. At the head of the list stands the United States, with an aggregate for 1884 of 63,950 tons. It has more than doubled its production in three years, and in five years has very nearly trebled it, its aggregate in 1879 having been only 23,350 tons. For the second place Spain and Chili run each other very hard. Last year the total yield of the Spanish mines was close on 41,000 tons, while Chili produced a few hundred tons over the 41,000. It is very probable that the current year will reverse their relative positions, as the Chili production has for some time been virtually stationary, while that of the Peninsula continues to make rapid progress. Two years ago it was only about 36,000 tons, and not till 1879 did it pass 30,000 tons.

A few years ago Australia ranked among the leading sources of supply, but her position is now being challenged by some keen competitors. Since 1880 Germany has got ahead of her, but the contest between them is still close. Last year the yield of the German mines was estimated at 14,780 tons, against 13,300 tons for the whole output of Australia. No other secondary supply approaches these large totals, but there are several ranging from 4000 to 6000 tons per annum. Japan is credited with 6000 tons—a very significant fact in view of her proximity to India, which has hitherto been one of our best copper markets. Copper mining is probably no infant industry among the Japanese, but it seems to have of late received a special stimulus. Till about four years ago its annual production was estimated at 1900 tons; consequently, in the interval it must have been more than trebled. At the same rate of growth Japan should soon be able to meet all the requirements, not merely of India, but of the Far East. The Cape of Good Hope shows a very steady production of about 5000 tons per annum, raised chiefly, if not wholly, by one company. The wide distribution of copper is strikingly illustrated by the circumstance of its being worked in nearly all the principal European States. The German and Spanish mines have been already referred to. Those of Russia, though less known, have some statistical importance, as their yield is believed to have increased to the substantial amount of 4000 tons per annum. The mines of Norway and Sweden make up between them nearly 3100 tons a year. Those of Portugal yield nearly 3000 tons, and last year they had the distinction of beating Cornwall, the annual output of which is becoming small by degrees and beautifully less. In 1881 it reached very nearly 4000 tons, but in 1883 it shrank to about 3000, and last year it is supposed to have been not more than 2500 tons. Italy is only a third-rate producer, and does not seem to be advancing, its aggregate having declined from 1600 tons in 1883 to 1325 tons last year. Australia and Hungary are both very nominal producers, their aggregate falling short of 1000 tons per annum. These third and fourth rate sources of supply on the Continent have very little influence on the copper market, the whole product being, as a rule, retained for home consumption. Germany, too, is for the most part a self-consumer. Of European mines the Spanish and Portuguese alone directly affect the international market, with which we are now dealing.

When we turn to South America a new vista of yet untested and ungauged possibilities opens out before us. The presumption is that the southern half of the Continent will prove to be as rich in minerals as the northern half is already known to be. As regards Mexico, that is no matter of hypothesis—though, strangely enough, very little copper has as yet been found among the subterranean wealth of the Incas. Her production appears not to have reached 500 tons in any recent year, and last year, so far as can be ascertained, it fell short of 300 tons. But some of her smaller neighbours are beginning to show cupriferous developments of high promise. Venezuela is making herself very widely, if not favourably, known in Europe through her gold mines, and she possesses at least one copper mine of first-class importance—the New Quebrada. It contributed last year to the copper supply of the world no less than 4600 tons, very nearly half the production of the Tharsis mines in the same period. Bolivia is also to be reckoned among copper producers, though during the past two years low prices have obliged it to contract its operations severely. From a yield of nearly 3300 in 1882 it dropped last year to less than one-half.

In any attempt to forecast the future of the copper market, one of the first circumstances to attract attention is the geographical distribution of the commodity. That has undergone a marked change in the past few years, and it may draw after it a corresponding change in the distributing centres. At present London and Swansea are beyond dispute the copper markets of the world. Last year more than half of the total amount raised was handled in these markets. They draw the raw material in various forms from Spain, from Australia, from Chili, and latterly even from Arizona and Montana. But when this course of trade was established Swansea was the most accessible centre for all the leading copper mines. That is no longer true of a considerable portion of them. It is not correct, for instance, of the United States mines, nor of those in Central America. It remains true of Chili and Peru only because the Americans have not yet entered seriously into competition with us on the Pacific Coast. They are now feeling their way from San Francisco, but for a year or two longer they will have an uphill fight until the Isthmus of Panama is cut for them. Then they will have both coasts of South America at their feet, and Swansea will have to contest with Baltimore every ton of copper exported from Chili or Peru. The Americans will see their opportunity of, so to speak, "capturing" the greater part of the production of their own continent. They will apply a Monroe doctrine of a most practical kind to copper. If by so doing they get into their hands a large share of the total produce of the world, they will certainly be able to compete with us for the control of the market; it may be even to take it from us. This is so important a consideration as regards our commercial future that it deserves further looking into.

It is evident that the centre of trade which can attract the largest share of the annual out-turn of a given commodity must in the end become its controlling market. In virtue of that law London and Swansea now control the copper trade of the world, for, as has been said, they have the handling of more than one-half of the total production. Last year the imports into this country, chiefly to these two ports, were equal to 113,000 tons of fine copper. This, added to the Cornish production of (say) 2500 tons, makes 115,500 tons distributed through the British market. Taking the aggregate production of the world at 210,000 tons, it would be about 55 per cent. If, however, the whole of the American production had been retained at home, it would have amounted to more than 112,000 tons, of which nearly 64,000 would have belonged to the United States, and the remainder to South America. Young as its copper industry is, America has thus already within its grasp a good half of the world's output. It has, moreover, the chances of the future largely on its side. New copper fields may, of course, be discovered in Europe or in Asia, or in Africa; but, failing them, the growth of production in the old world must be relatively slow. In America there is a certainty that enormous deposits of copper are yet untouched, and that the fields already open are capable of indefinite development. Taking a very moderate estimate of the probabilities of the case, the time may not be far distant when the copper production of the American continent will greatly exceed that of the rest of the world. If this anticipation is realised, and it seems comparatively near, the centre of gravity of the copper markets will be transferred across the Atlantic. Placed under American control it will have American methods of business applied to it, which in some material respects are very different from our own methods. To mention only one instance. There is a powerful institution in the States bearing the concise but rather mysterious name of "a pool." It has by degrees insinuated itself into nearly every leading department of American industry and commerce. Railway pools, coal pools, iron pools, and mining pools are familiar phrases in everyday life of the States. Even copper pools are not altogether a novelty. More than one attempt has been made to acclimate them on the shore of Lake Superior; and there is, in fact, a very peculiar pool now in the hot throes of a disturbed existence. Two years ago the Lake Superior companies had to take seriously in hand the problem of over-production. In 1882 there had been raised in the United States 88,000,000 lbs. of fine copper, while the home consumption was only 77,000,000 lbs., and the export less than 5,000,000 lbs., leaving 6,000,000 lbs. surplus in the year. In 1883 the total production was 113,000,000 lbs., and the home consumption only 80,000,000 lbs. The copper companies were threatened with a surplus on the year of over 30,000,000 lbs., and a special outlet had to be sought for it abroad. They entered into contracts in Europe, particularly in France, for very heavy sales at lower rates than they were obtaining in their own market. Last year their output increased by another 25,000,000 lbs., raising the total to nearly 140,000,000 lbs. Meanwhile the home consumption declined by 10,000,000 lbs.—that is, to 70,000,000 lbs. Including the surplus stocks of preceding years there was now between 80,000,000 lbs. and 90,000,000 lbs. to dispose of abroad. The special contracts placed in France and elsewhere were enlarged to suit the

requirements of the case, without much regard to price. Towards the close of the year forward sales were being made as low as 11 cents and 10 $\frac{1}{2}$  cents per pound. By this means the American companies relieved the dangerous glut that was overwhelming them to the extent of nearly 80,000,000 lbs., but they did so at the expense of the European market, and with the result of utterly demoralising it.

The above operations were distinctively American. They were planned on American lines, and carried out with American energy. The Lake Superior companies, numbering about a score, formed a pool, under the direction of the famous Calumet and Hecla, on the principle of each putting in a certain ratio of its production. The sale of the pool copper was left absolutely to the Calumet and Hecla, which seems to have entered into some most peculiar contracts. In one case it sold several thousand tons to a speculative group in France at a sliding scale price of 4*l.* per ton over the average of Chili bars during the month of delivery. Chili bars are well known to be a decidedly speculative article. It is not difficult to put the price of them either up or down as bold operators may find it convenient. The French speculators who had bought this Lake Superior copper were obviously under a strong temptation to depress the standard by which it was to be paid for. It had very probably been part of their original scheme to knock down Chili bars and take a two-handed profit—one out of Chili, in buying it back at a lower level, and the other out of Lake Superior, in settling with the pool at an artificially reduced price. In March, when Chili bars touched 43*l.* per ton, the equivalent payable to the Lake Superior pool was a shade under 10*c.* per pound. Some of the minor companies began to kick when they saw how the European market was being cleverly worked against them. At last the Quincy people took the bull by the horns, and refused any longer to furnish their portion of the copper for the French contracts. The Calumet and Hecla appealed to the Courts to enforce the terms of the pool, but failed on the ground of pools being contrary to the public interest. Thereupon the Quincy and several, if not all, of the other companies left the Calumet and Hecla to carry its French contracts on its own shoulders. It is understood to have carried them out, and it is even said to have entered into new forward sales of a similar kind. While it was shipping its surplus copper to France at 10*c.* per pound its competitors were finding a ready sale for their copper in the States at from 11 to 11 $\frac{1}{2}$  *c.* per pound.

Presumably the Lake Superior companies will be more careful in their future dealings with French speculators, but pools of one kind or another are sure to be heard of again among them. They may, indeed, be attempted on a considerably larger scale should the increase of American production force the American companies into some such measure of self-protection. Restricted production has become a recognised principle of all the great industries whose markets are liable to periodical gluts. We have it practised openly in Cleveland and indirectly in Lancashire. In the United States it is a custom reduced almost to a science. When the American copper market reaches the point of a hopeless glut, to which it is rapidly progressing, systematic restriction will be applied to it, either in the form of pooling or something else. Copper offers exceptional facilities for such tactics. The bulk of it is raised by large producers, who, both on Lake Superior, on Montana, and in Arizona, are comparatively few in number. A moderate-sized room in New York would hold representatives of all the copper mines in the States which have any influence to speak of on the market. In the Lake Superior group there are only 10 which have an output of more than 1,000,000 lbs. per annum. Montana and Arizona may have half-a-dozen each of corresponding rank. But if double that number of men had to be admitted it would still be a manageable pool. Whatever is practicable in pooling the Americans may be counted on to do sooner or later, and in this case sooner rather than later. If the centre of gravity of the copper market should, as we have conjectured, swing round to the other side of the Atlantic, a result which can be safely predicted is that it will soon become a severely manipulated market. A pool to include all the leading producers of both the old world and the new is by no means a Utopian dream. It is a practicable scheme, which a dozen resolute men could carry out without much difficulty if they were to set their minds on it. Investors in copper shares may find some comfort in this reflection when day after day they read of Chili bars being flat at 43*l.* 10*s.* per ton. A small degree of the financial strategy which distinguishes the Americans could put them up to a very different figure. Perhaps before the current year closes we may of hear combinations on the other side directed toward a forced revival of copper.

SIR.—We have perused with interest the ably written letter on the copper trade which appeared in the *Times* of yesterday.

Permit us, however, to observe that the heading given by your correspondent hardly seems applicable, the term "deluge" implying that the quantity recently brought to the European markets was far in excess of requirements. Such a view is not borne out by statistics, the supplies received by England and France between the 1st of January, 1881, and the 1st of August instant being, in round numbers, 547,000 tons, with an apparent consumption during the said period of 551,000 tons, which excess of consumption is confirmed by a reduction of the quantity of metal in public warehouses of 4047 tons.

We may here mention that the visible supply, which includes what is known to be chartered and afloat from Australia and Chili, has fallen from 60,208 tons to 53,645 tons, the value of Chili bars dropping from 62*l.* to 43*l.* 10*s.* per ton, but touching (December-January, 1881-2) during the interim 71*l.* 5*s.*, with a then visible supply of about 50,000 tons. The average values for that description of copper 1881 to 1884, both inclusive, were 62*l.* 10*s.*, 66*l.* 15*s.*, 63*l.* 5*s.*, 54*l.* 7*s.* 6*d.* respectively, and to-day's price is 42*l.* 15*s.* cash. X. Y. and Z.

*London, August 27.*

SIR.—I have read with pleasure your very interesting article on the "Deluge of Copper." Cheap copper would be a blessing to the world at large were it not for the selfishness and greed of the classes engaged in its manufacture and sale. Copper goods and utensils, which enter so largely in the needs of daily domestic life, are as expensive now as they were years ago, when the raw material was three times as costly. For instance, we have to pay for a copper kettle nearly, if not quite, as much as we did 30 years ago. Walk into a shop, ask the price of a copper kettle, and on objecting too it as much too high, the salesman will kindly favour you with the information that "copper is a very expensive material." When you remark that its present cost is less than half what it used to be, you will be told—"Oh, but the wages of the workmen have been more than doubled the last few years," a statement hard to swallow in the face of the great depression in trade. If manufacturers and sellers of copper articles would only be moderate in their demands and be satisfied with a fair profit the sale of all copper goods would make an enormous stride. I have a large household, and were prices reasonable, I would at once triple the copper utensils we have such as water-cans, coal-scops, kettles, *batterie de cuisine*, &c. Copper enters largely into the composition of brass, and yet, though tin is also much cheaper than it used to be, the same high prices rule with respect to brass articles as they do to copper. Most household articles are much cheaper now than heretofore, save those made of copper and brass. With reasonable prices an enormous consumption of both would take place, and tradesmen would quickly find out that many nimble sixpences would greatly outvie in profit the very slow half-crown.

H.

The directors of the Staveley Coal and Iron Company (Limited) in their 22nd annual report state that the net profit for the year ending June 30 last is 34,077*l.* The dividend for the year on the A and C shares (60*p.* paid) is 2*l.* 10*s.* per share, and that on the B and D shares is 8*s.* 4*d.*, the balance to the credit of revenue remaining at 24,201*l.* The directors state that the iron trade shows no signs of improvement, and the low prices that now prevail have previously been unknown in the history of the trade in the locality.

TRAMWAYS.—The closing prices of this evening, as quoted by Mr. W. Abbott, of Tokenhouse-yard, are given in tabular form in the Stock and Share List page of the Journal.

#### WESTPHALIAN V. ENGLISH COAL.

The German railway authorities have declared themselves willing to allow specially reduced rates for the transport of Rheinisch-Westphalian coal to Italy, and there is said to be a prospect of an arrangement which will enable Westphalian to compete with English coal in the Italian markets, in spite of the reduced rates for English coal introduced on the Italian lines since July 1. The lowest price at which the Alta Italia railway authorities have been able to contract for Cardiff coal delivered in Genoa this year, according to an Italian authority, has been 23*f.*, and this rate was quite exceptional, 25*f.* (or, say, 20*s.*) having been paid for the bulk of the supplies. The managers of the Alta Italia railways are prepared to make extensive experiments with Ruhr coal, and were the railway tariffs slightly reduced it is believed that such coal could be delivered at least over a certain part of Upper Italy as cheaply, or more cheaply, than the English article. It is admitted that English coal, to which Italian consumers have become accustomed, cannot be rapidly driven from the Italian markets; but the imports of Westphalian coal, which amounted to only 10,600 tons in 1883, rose last year to 22,000 tons, and are this year expected to exceed 40,000 tons, even with the existing railway rates. Could the Ruhr coal be delivered as far as Milan at 2*f.* per ton less cost for carriage than at present, as there is said to be good reason to hope may be the case, the imports would, it is argued, increase fivefold within a year and tenfold within two years.

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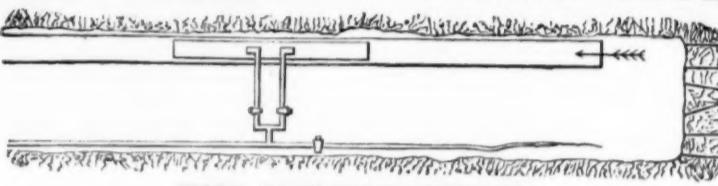
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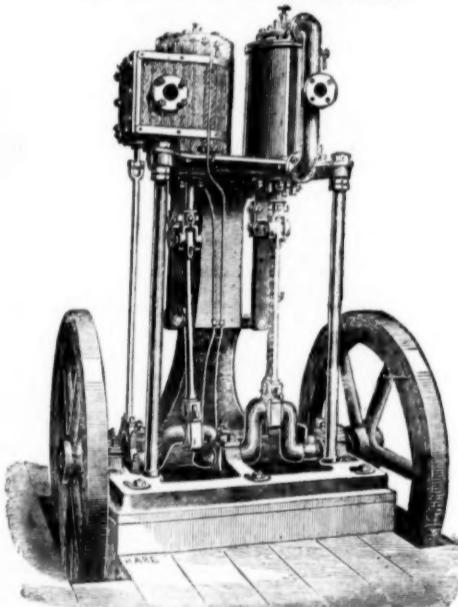
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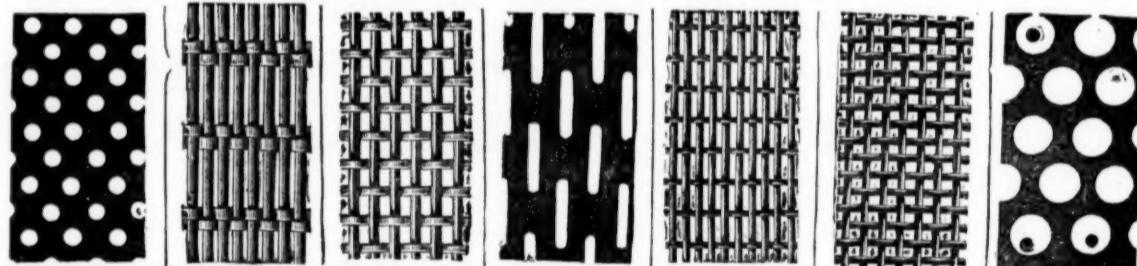
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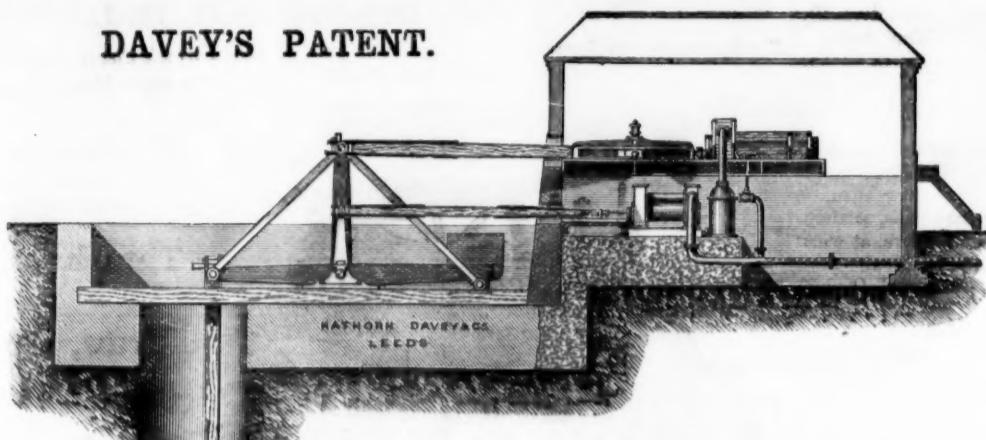
Every information relative to the progress of lode-tin mining in the Wild River district (termed by geologists “The Cornwall of Australia”) can be obtained by communicating with the undersigned.

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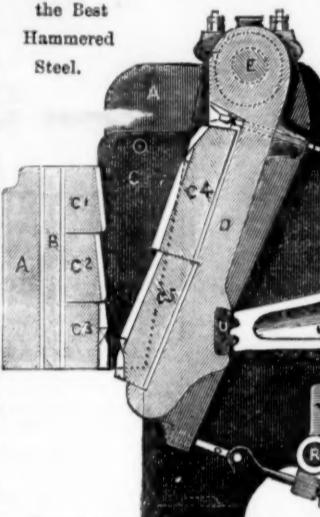
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All Shafts and Axles are made of the Best Hammered Steel.



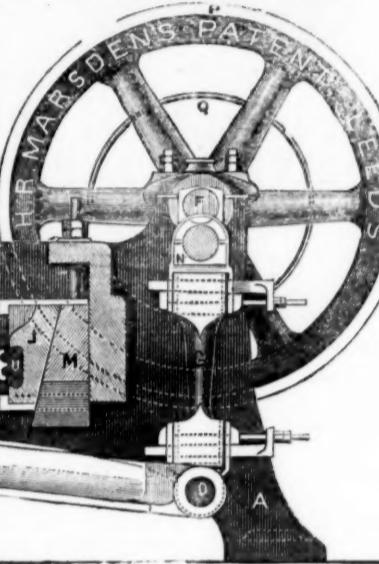
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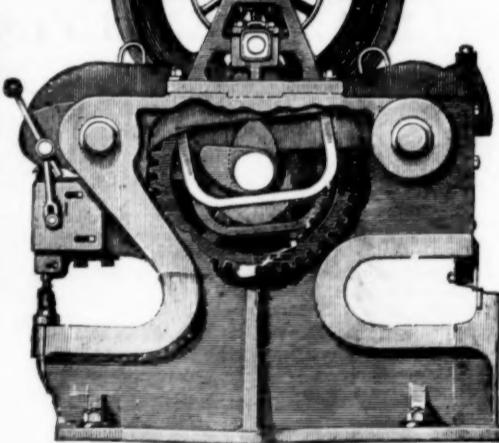


### STONEBREAKERS AND ORE CRUSHERS TESTIMONIALS.

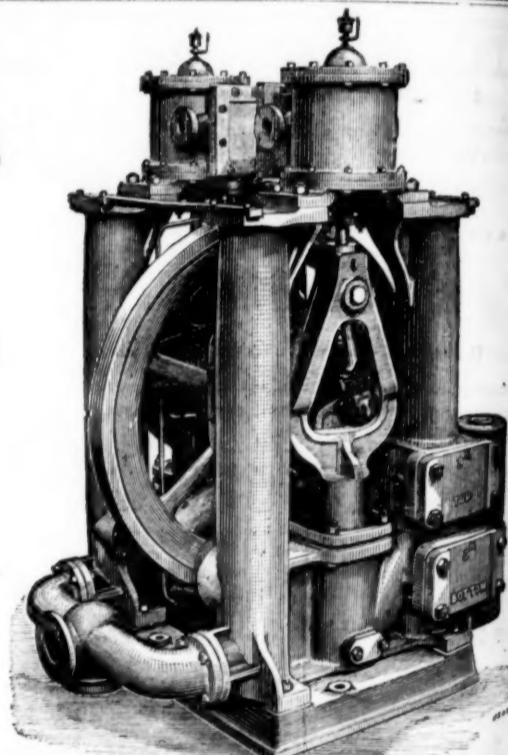
"We have great pleasure in testifying to the efficiency of the 15 in. by 8 in. Lever Hand-Hammer Motion Stone Breaker you supplied us with. We find that our 4 h.p. Engine with ease drives it 200 revolutions per minute, and breaks six tons per hour of the hardest "Diorite" Whinstone; the sample is much before any hand-broken we have ever got done. Our Mr. P. J. GRAHAM, C.E., who was Surveyor of Highways for ten years, before joining our firm, says it is by far the most economical machine he ever had to do with; he had two of your former make, and one of another firm's make; compared with these four machines your new patent gives the following advantages:—The horse-power required to drive is exactly 40 per cent. less. The sample of the broken adam is so far superior to that broken by hand that we can make no comparison. It is by far the best sample we have ever seen."

"I now order three of your Stone Crushers, size 15 by 10, to be of your very best construction, to include two extra sets of Jaws and Checks each. The last two 24x13 machines you sent me, which are at work in this colony, are doing very well. You will soon find that the railway contractors will adopt your machines in preference to the colonial ones—two of which I have. I know other contractors have had as many as nine of them, which have not given very good satisfaction. Once they know of your thoroughly, I believe you will do a good trade with the colonies. For reference of the high character of your constructions you can refer to me as having used them with the very best results, both in New Zealand and this colony, and much prefer them to the colonial article, both in point of construction and liability to go out of order. The material we are crushing is very hard blue stone, for railway ballast purposes. Push on with the order as quickly as possible. I do not think it necessary to have any engineering inspection. I have brought your machines prominently under the notice of all large contractors in this colony, likewise the Government. Many of the contractors have spoken to me in reference to their capabilities, and I could only tell them that they are by far and away the best and most economical I ever used. The very fact of my having purchased eleven from you at various intervals and various sizes, and two above 12 years ago, and having tried all the other makers is sufficient guarantee of the capabilities and the working of your machines. Yours in every way surpass all others."

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